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Original Communications.

THE EXTERNAL THERAPEUTICS AND THE DIETETICS OF PULMONARY CONSUMPTION.

By Thos. J. Mays, M.D., Philadelphia.

APPROXIMATELY it may be stated that there are three classes of individuals who fall victims to pulmonary consumption, although, more minutely examined, it will be found that the first two are merely varieties of the same class. To the first class belong those who possess a feeble constitution, and who are constantly subject to inflammatory troubles in the respiratory mucous surface, which may at some opportune time extend into the alveoli of the lung, clog them with catarrhal products, after which cheesy transformation, formation of cavities, and tubercular infiltration will follow. To the second class belong those who make an incomplete recovery from some acute inflammatory disease of the lungs, like bronchitis, pneumonia, etc., which gives rise to the same train of symptoms as those of the first class. To the third class belong those who contract the disease by the absorption of septic material derived from an infectious centre in the body, like puerperal peritonitis, caseating lymphatic glands, etc., and which is also succeeded by tuberculization and destruction of lung-tissue.

Now, whatever the intimate nature of the

cause of pulmonary consumption may be, it is too evident that the chief factor in its production is inflammation, and that its persistent tendency is to enfeeble and depress the functions of the body, both local and constitutional; and that the aim of the physician must be directed towards subduing the local difficulty as well as towards elevating the general power of the body.

In the *Philadelphia Medical News* (March 8, 1884) I made a strong plea in behalf of external treatment in pulmonary consumption, and in connection therewith reported nine cases favorably treated in that way; and what I have now to offer is simply a continued advocacy of that plan of treatment, together with some remarks on the importance of dietetics in the treatment of this disease. Even at the risk of laying myself open to the charge of tautology, I will say that that useful class of therapeutic agents which are applied externally to the body, and which are commonly but erroneously called counter-irritants, communicate force to the body independent of that derived from the food, and have the power of increasing and enhancing the cellular activity of the parts to which they are applied. When almost instantly after receiving a hurt it is instinctively subjected to a sound and vigorous rubbing there is aroused in the injured part, and in its surroundings, another line of motion opposed to that which was generated by the blow, and thus the part is restored, or brought nearer to a more comfortable and normal condition. The action and the reaction between the impulses generated by the blow and those generated by the friction are analogous in their behavior to what is known to take place when organic matter is influenced in such a way, as the following examples demonstrate. An impulse may be conducted along a sensory nerve and produce its customary reflex action, but when a counter-stimulus is applied nearer to or at the reflex centre, no reflex motion will take place. The second stimulus generates an opposing impulse equal in power to the first, and so they neutralize each other. In practical medicine this law is illustrated when hiccough is arrested by the application of a faradic current to the body in the neighborhood of the diaphragm. I recently discovered* that there is a constant and measurable plus and minus action of this kind between some therapeutic agents on the frog's heart, notably so the antagonism between curare and lycopine, and chloroform and sulphuric ether. For example, the minimum and maximum doses of each of these agents were first ascertained; by minimum doses is meant that quantity which produces the highest and best possible tracings of the heart, and by maximum doses that quantity which produces the lowest possible tracings of the heart. Maximum doses of chloroform, say 1 to 500 (one part of chloroform added to five hundred parts of a two per cent. blood-solution); or of sulphuric ether, say 1 to 5 (one part of sulph. ether to five parts of a two per cent. blood-solution), give very low, and at times hardly perceptible tracings; but if a minimum dose of curare or of lycopine or of strychnine in the proportion of one part of each to eighty thousand parts of the two per cent. blood-solution (in the case of strychnine it is 1 to 160,000) is added to either a maximum dose of chloroform or of ether, the heart-tracings are always higher, and in many cases three, four, and even five times as high as the tracings derived from maximum doses of either of the latter agents alone. In these instances we find a pure and distinct antagonistic action, not like the one which is manifested by an acid in neutralizing an alkali, but a physiological opposing action between two agents upon the structure of the heart in the sense of plus and minus,—*i.e.*, by adding to and taking away from the heart. The maximum doses of these agents have the power to depress the action of the heart to the lowest point compatible with at least its massive motion, and the minimum doses have the power to stimulate and invigorate the heart to its highest point, but when they are combined there takes place a conflict in their action, and a new line of motion, lying between that of extreme depression and that of extreme stimulation, is the product. Or, in other words, the minimum doses have the power of increasing the resistance of the heart against the depressing influences exercised by the maximum doses to such a degree that the power for evil of the latter is more than counterbalanced by the power for good of the former.

Now, in a general way it can be stated that disease is a force which moves in a direction contrary to that of the vital forces, and that therapeutic agents are to, and can, be applied in such a manner, both internally and externally, that they tend to enhance the vital forces, and so combat disease; therefore when the action of disease is substituted for the depressant action of maximum doses of the above-named agents, as is the case when

* See THERAPEUTIC GAZETTE for February, 1885.

electricity arrests hiccough, it does not require a very elastic imagination to conceive the possibility of antagonizing disease by well-adapted and well-directed therapeutic methods. One of the most obvious examples in practical medicine, perhaps, where the external therapeutic agents which pass under the name of counter-irritants are employed in consonance with the law of antagonism, is found in the application of hot flaxseed-poultices to an old and rebellious ulcer on the stump of an amputated limb. Every practitioner is conversant with the trials and discouragements which this trouble often entails. Observation teaches him that the ulcer varies in its size; that at times there is almost complete union, while again the edges recede as far as ever. Deeper study teaches him further that the changes in the condition of the wound are dependent upon the general health of the patient; that when the patient feels well the sore is smaller, and when he feels poorly the sore is larger. Hot flaxseed-poultices applied to such a stump is certainly very good treatment, and frequently brings success when other attempts have failed. What interests us mostly here is the fact that the existence of the sore depends directly upon a want of vital resistance in the stump, or, in other words, the disease force (which may be a negative force in this instance) predominates over its weak and struggling surroundings, and that the poultice supplies the requisite force to enhance the vital reaction of the limb.

The hot flaxseed-poultice is, however, only a good example of many other agents which antagonize and limit the processes of disease in this way. In fact, any agent which has the decided power of exciting the cellular and molecular action of the skin and of the contiguous parts beneath it, possesses this property. It is the heat in the poultice principally which sets up accelerated action, hence there is but a short step to friction, mustard, cantharides, antimony, croton oil, etc., all of which act pre-eminently in the same way, though in varying degrees. In friction we have an agent which is calculated to induce only a mild degree of molecular activity; in cantharides we find a substance which acts with great rapidity, and consequently produces vesication; in croton oil and antimony we possess agents which are slower in their action, and so usually produce pustulation. Here, then, are a variety of agents which are suited to many varied pathological conditions. As a rule, the older the disease the more unyielding it is to these agents; hence the milder forms, such as mustard, friction, etc., are employed only in acute or recent cases, and in the older and more stubborn cases poultices, blisters, croton oil, antimony, and other agents are usefully employed. The hot flaxseed-poultice is, however, more valuable than any of the other agents in chronic inflammatory troubles of the lungs. Some years ago I devised a steam apparatus in the shape of a double jacket which had an action similar to that of a poultice, only more powerful in degree, and which I had occasion to apply in the more advanced and persistent form of pulmonary consumption. In my first paper I related several cases where it was used with favorable results, but in the present series of cases I only found it necessary to apply it in one case, all the rest yielding to the milder action of the hot flaxseed-poultice. Even in Case II., where the whole condition of the patient pointed to a very unfavorable prognosis, the external application of poultices undoubtedly checked the progress of the disease, as will be seen from the improvement of the physical signs.

But apart from a consideration of the *a priori* arguments which have been advanced here in favor of the stimulant action of these external applications, it is plain to any one who is at all familiar with the beneficial action of these agents in ordinary inflammation, that they must have a similar action when applied to most cases of pulmonary consumption. Against the fatal error that a patient with a consolidated portion of lung is certainly tubercular, and is looked upon as being doomed, the facts, both from a clinical and scientific stand-point, unequivocally point out that, in the great majority of instances, a case of pulmonary consumption, long before it can possibly become tuberculous, is preceded by a purely inflammatory stage, consisting (1) of catarrhal proliferation; (2) infiltration of alveoli with catarrhal products and leucocytes; (3) caseation and disintegration: and it is only after the caseating accretions break down that the true tubercular stage begins. This truly pre-tubercular stage, which is marked by the physical signs of dulness, bronchial respiration, and crepitation, is really a golden, but often neglected, period, in which marked benefit will be derived from judicious treatment, and in which the hot applications play such an important part.

Case I.—D., aged 59, miner, had been confined to the house for one year previous

to January 1, 1884, with cough and green-yellowish expectoration, night-sweats, chills, poor appetite, losing flesh. Had copious hæmoptysis twenty years before. Pulse and temperature varied very little from normal. Lost a brother with consumption.

Physical Signs.—Percussion dulness in right apex, both anterior and posterior. Vocal resonance increased over same region; diminished resonance over left apex. Bronchovesicular respiration in right apex, and crepitation in left. On the following 16th of February he began wearing the steam jacket for a few hours each day, and on March 17 I found crepitation in left apex diminished and respiratory sounds more normal in right apex. On April 24 he ceased steaming, with cough and expectoration very much better, no night-sweats, appetite and general strength improved. No crepitation or dulness anywhere, respiratory sounds somewhat rude in left apex.

Case II.—This patient had such an unpromising local and general condition that no permanent relief could fairly be expected from any mode of treatment. The case is important, however, in demonstrating the beneficial influence of the external applications, for there can be very little doubt, from a comparison of the physical signs at different periods, that the morbid processes were held in abeyance by the treatment. I first saw Mrs. A. August 2, 1884, aged 30, married ten years, with aggravated cough, expectoration since the previous February. Had first hæmoptysis five years ago, another one four years ago, and another copious one on the above-named date. Very much emaciated, weight, 99½ pounds; poor appetite, irregular bowels, night-sweats, chills and fever, menses regular but scanty, hoarseness in the evening and pain in the throat, extending to both ears. Pulse, 132; temperature, 39⅗° C. in the middle of the day. Lost a sister from the same disease one year before.

Physical Signs.—Chest barrel-shaped. Depressed walls anterior on both sides. Defective motion, left side anteriorly and right side posteriorly.

Percussion.—Tympanitic sound over left apex, anteriorly and posteriorly; also on right side anteriorly. Dulness over right apex posteriorly, extending to angle of scapula.

Auscultation.—Dry cavity sounds in left apex, anterior and posterior, having a sharp click at the end of inspiration in the latter locality. Right side, cavernous râles in apex, anteriorly and posteriorly; crepitation from apex to angle of scapula.

Treatment.—Ordered her whole chest to be enveloped in a hot flaxseed-poultice, to be changed every two or three hours, or oftener, if it got too cool. The poultice, after it is made by boiling flaxseed-meal in water, is to be spread at least three-fourths of an inch thick between two layers of heavy flannel cut in the shape of a jacket, with arm-holes and open in front and behind. It must fit the chest and well cover the top of the shoulders, front, back, and sides of the chest. After it is spread between the layers of flannel their edges are either sewed or tied together and then adjusted to the chest, after which the poultice must be covered by a large piece of oiled silk, or some thick woollen material, in order to prevent the loss of heat as much as possible. The whole procedure must be done as promptly and rapidly as possible, and need not consume more than five or ten minutes. This to be continued every day from morning until night, then taken off, and the whole chest well wrapped up with flannel during the night in order to obviate a sudden disturbance of bodily temperature during the sleeping hours. Internally I gave her compound tincture of cinchona and compound tincture of gentian to improve her appetite.

On August 27 I examined her, and found the following condition present: sleeps well, coughs and expectorates much less, color of expectoration yellow, no chills and night-sweats less, appetite very good, bowels regular, pain in throat about the same, no aural pain, evening temperature 38⅕° C.

Physical Signs.—Dulness in left apex; no moist sounds or crepitation anywhere in her chest. Bronchial respiration in interscapular region on left side.

October 2.—Feels about the same, and physical signs the same as at last examination.

November 15.—Suffers greatly from irritability and pain in the throat, and coughs and expectorates more; chills and night-sweats returned; appetite variable; deglutition causes her much pain, hence she abstains from eating.

Physical Signs.—Percussion sounds the same. Prolonged expiration at base of right lung, with a moist click at end of inspiration anteriorly in left lung.

Treatment.—The same as before, and in addition poultice around the neck, together with local applications to larynx.

December 9.—Throat very much swollen and irritable, and cough worse, expectoration

muco-purulent, streaked with blood. Unable to swallow without intense pain; crepitation in right apex. By local applications to the larynx her worst throat symptoms were relieved, but she grew worse, and died on December 23, 1884.

CASE III.—Saw K., aged 47, stone-cutter, first on January 8, 1885. He had a cough, yellow expectoration streaked with blood, chills and fever, no night-sweats at present, coated tongue, poor appetite, and bowels irregular. Sick since the preceding spring.

Physical Signs.—Right side. Defective motion anteriorly and posteriorly, also depressed at apex. Dulness on percussion in apex, anteriorly to third rib and posteriorly to spine of scapula. Cavernous râles directly below clavicle and mucous râles to third rib anteriorly, and bronchial respiration in apex posteriorly, extending to spine of scapula. Left side normal.

Treatment.—Envelop the whole right chest in a hot flaxseed-poultice, to be changed as often as necessary. Internally, compound tincture of cinchona and gentian, Valentine's meat-juice, and a nutritious diet.

January 22.—Cough and expectoration much less. Small cavity is being formed below clavicle; some mucous râles posteriorly where formerly was heard bronchial breathing.

February 9.—Moist râles disappearing anteriorly and posteriorly. Broncho-vesicular respiration behind.

February 23.—No moist râles anywhere except a few in small cavity below clavicle. His appetite is good, and his general appearance is much improved.

April 20.—Doing very well. Chest free of râles, appetite good, and gaining in flesh.

CASE IV., December 5, 1884.—Mrs. T., aged 36, caught cold six weeks ago, and has had a cough and yellow expectoration ever since; had hæmoptysis a number of times recently, night-sweats, chills and fever, losing flesh, poor appetite, and irregular bowels.

Physical Signs.—Right side. Dulness and increased vocal fremitus and resonance to second intercostal space, and posteriorly to spine of scapula. No crepitation, but tubular respiration over same region behind, and mucous râles in anterior aspect of apex. Left side normal.

Treatment.—On January 13, poultice over the whole of right chest, and ordered nutritious diet, together with a few simple tonics.

January 27.—Spat no blood since she began the poulticing, and says she feels much better; cough and expectoration less; no pain on breathing, as she says she had before. Physical signs about the same; appetite good.

February 4.—Has had a slight hemorrhage, but cough and expectoration less.

March 5.—Very much better. Chest free from râles; ordered the poultice to be discontinued.

April 2.—Feels very well; cough and expectoration almost entirely gone. Is now able to do her own housework. Only existing evidence of disease in the lung is a slightly diminished percussion note in right apex, and a somewhat coarse vesicular respiration below clavicle. She is now taking tincture of iron and quinine.

April 28.—Feels very well.

CASE V., February 25, 1885.—L., aged 30, printer; cough for five weeks; copious expectoration, mostly in morning; losing flesh; clubbed finger-ends; has chills and night-sweats; appetite poor; hæmoptysis a number of times within the last two weeks. Spat up a considerable amount of blood during my examination.

Physical Signs.—Pigeon-breasted chest, with a strong retraction of lower end of sternum. Dulness over right apex anteriorly to second intercostal space, posteriorly to spine of scapula. Vocal resonance increased over same region, also bronchial respiration over same region, with a few moist râles anteriorly. Left side normal.

Treatment.—Flaxseed-poultice over right chest, and tonics for the stomach.

March 2.—Feels much better. Bleeding from the lungs ceased almost immediately after poultice went on.

March 9.—Still improving; appetite good. No hæmoptysis since. Dulness on right side diminished. Respiration vesiculo-bronchial and somewhat wavy in right apex; no moist râles. Discontinued poultice on March 15, and on April 6 all abnormal physical signs have disappeared except a slight diminished resonance and coarse vesicular sound in right apex.

April 8.—Has been to work and feels very well.

April 29.—Doing very well.

The statement that the well-fed body is better able to cope with hurtful influences than a poorly nourished one is too obvious to require further confirmation, and that which is true in a state of health is equally true when the bodily equilibrium is disturbed by disease. When, after an acute sickness, the digestive and assimilative functions return to

their wonted activity, it is always an indication that the vital powers succeeded in throwing off the disease; and the periodical depressions and elevations which occur in many chronic diseases move in harmony with the impairment and improvement of the digestive power of the patients.

All individuals belonging to the consumptive class possess two prominent characteristics,—(1) a capricious appetite depending upon a facile derangement of the digestive and assimilative apparatus, and (2) a lack of constitutional resistance against unfavorable conditions. The strength and sustenance which they derive from their daily physiological income is barely sufficient to meet the daily demands incurred by carrying on the normal expenditures; hence the reserve capital is but small, and leaves the body in but an unstable equilibrium, unfit to react against the contingencies of disease which may be encountered at any time. It is evident, therefore, that the physician's attention is promptly demanded to rectify the digestive and assimilative difficulties in this disease, and his success or failure in the treatment of it is measurably due to his ability or inability to permanently restore these impaired functions. In order to succeed it is necessary to discriminate rigidly between those foods which agree with the patient and those which do not. As far as the force-producing value of foods is concerned, there can be no doubt that cod-liver oil and the fatty and saccharine foods stand at the head of the list; but it is also true, on the other hand, that many patients have a marked aversion to all fatty substances, and oftentimes when cod-liver oil does agree, it diminishes the capacity of the stomach for other kinds of food. Again, it is well known that in these cases there is a constant tendency to sourness of the stomach after eating, caused by excessive fermentative changes of the fatty and sugary foods; hence, with all the redeeming features of the non-nitrogenous foods, it would be madness to persist in their use when they are so plainly contraindicated. When they are well borne, stimulate the appetite, and make flesh, they are invaluable.

Among the non-nitrogenous foods which are least prone to undergo fermentation are alcohol and butter, and the dietetic value of these articles, if they agree, increases in proportion as it becomes necessary to exclude the other non-nitrogenous foods from the dietary list. The nitrogenous foods which are employed to greatest advantage in this disease are beef, mutton, eggs, oysters, lobsters, milk, either raw or cooked, cheese, bread, beans, peas, etc. These foods, by entirely obviating the constant tendency to fermentative changes in the stomach, furnish a desideratum which cannot possibly be supplied by the non-nitrogenous class.

In the management of the dietetics it is of the utmost importance to have these patients under constant and entire control of either a nurse or an assistant, and to have them pursue a rigid and systematic course in regard to everything that pertains to their welfare. Each patient should have a programme laid down as to what to do in relation to eating, drinking, sleeping, exercising, amusements, application and administration of remedies for the whole twenty-four hours. No half-way measures will answer in the treatment of this malady. The great object to be gained is to economize the energy of the stomach and the body, in order to secure the greatest amount of work with the least expenditure of vital force. The first can undoubtedly be best achieved by allowing the patient to take small and oft-repeated meals. Five or six meals a day at regular intervals, slowly and thoroughly masticated and swallowed, will furnish a sufficient amount of nutritive material to the patient. Dinner taken between one and two o'clock should be the heaviest meal, and the last one at night should be the lightest one in the day. Upon a most dextrous cook depends the task of serving a variety of foods, and of rendering the bill of fare tempting and enticing to the patient's appetite. No appetite is as fastidious as that of the consumptive, and he should never know in advance what the table has in store for him, so that he is not allowed sufficient time to manufacture excuses for not eating certain kinds of foods. He always eats best when he is surprised by some new and inviting dish; but, on the other hand, nothing should be denied to him unless it is known to be positively injurious.

In regard to medicinal treatment which is calculated to arouse the digestive apparatus, much can often be done. A pressure and fulness in the gastric region, associated with sour eructations after eating, is very often relieved by eight or ten drops of dilute phosphoric or of dilute nitro-muriatic acid in a tumblerful of hot water after meals, and, if necessary, a combination of compound tincture of cinchona, gentian, and cardamom before meals. A brisk massaging over the gastric region for ten or fifteen minutes has a very beneficial effect in these digestive disorders.

In conclusion, it is proper to state that the one great hindrance to the successful treatment of these cases, especially those in the advanced stages of the disease, is the want of a suitable place for their proper management. Where everything in detail is of such vital importance to the patient it is necessary that he should be under the complete and constant control of the attending physician or of his assistants. This is, of course, in many cases impossible in the patient's own home, and where, besides, he is frequently surrounded by the most undesirable unhygienic conditions. Hence the great desideratum is to possess a hospital or institution similar to those of continental Europe, which are especially arranged for, and exclusively devoted to, the treatment of this class of cases, and then much more can be promised by, as well as expected from, rational treatment.

151 N. Fifteenth St.

THERAPEUTIC VALUE OF ICE.

By L. B. Anderson, M.D., Norfolk, Va.

No one doubts the value of ice, externally applied, in active congestion of the brain, various hemorrhagic states, and in local inflammations. But its value in congestive chill seems to have escaped the observation of the profession, though the writer briefly called attention to it several years ago.

Some time ago I practised medicine in a district of country where spacious lowlands were intersected by numerous sluggish streams, and every few miles a millpond of standing water covered over hundreds of acres. In this section intermittent, remittent, and continued fevers of every conceivable type prevailed,—dynamic, adynamic, typhoid, inflammatory, and congestive, requiring treatment as diversified as their types.

As the fall of the year progressed they all assumed more or less of the congestive variety, and occasionally the first serious indisposition was characterized by a well-developed congestive chill. Generally, however, there would be two or more chills and fevers before a congestion would supervene. The state of congestion was often preceded by no sense of chilliness. Occasionally there would be nausea, headache, and an uncomfortable sense of oppression. In other instances a slight diarrhœa, with nausea and swimming of the head. At other times, a feeling of lassitude, oppression, and thirst, with giddiness, would be developed, and the patient would pass unconsciously into a cold and listless state, with cold nose, extremities, and face, with only an increase of warmth about the chest and bowels, and back of the head and neck. Whatever were the initiatory symptoms, when the congestion was fully developed the leading characteristics were identical. There were, it is true, in some cases, congestions of the brain instead of the more usual congestion of the stomach, liver, lungs, and bowels, in which state the treatment was very different from that required in the latter and more usual condition.

A fully developed congestive chill is as insidious as it is alarming, and when improperly treated, fatal. The whole surface, with an occasional exception of the chest and epigastrium, is as cold as death, and bathed in a profuse perspiration. The pulse soon ceases to beat at the wrist, and the pulsations of the heart are frequent and feeble. The respiration is short and hurried, with an occasional sigh. Sometimes both the respiration and pulse are slow and feeble. The surface becomes mottled with the irregular accumulation of dark venous blood in the cuticular capillaries. The countenance is variable: sometimes it is calm and serene, the eye expressive of no emotion, and the patient sinks into the sleep of death, as if falling into a calm repose; at other times, great restlessness, anxiety, and suffering may exist. Often one who is reduced to the verge of dissolution and recovers, is perfectly oblivious of what happened during all the period of congestion, though he seemed to be perfectly conscious all the while.

Accompanying the congestion there is, sometimes, a diarrhœa (always very unfavorable), at others, nausea, and occasionally, when the lungs are peculiarly implicated, pulmonary hemorrhage.

We have a case of congestion involving the lungs, stomach, liver, and bowels, the most usual event. The pulse has ceased at the wrist, the breathing is hurried, the heart beats feebly and fast, the surface is deathly cold and bathed in perspiration. The indications clearly are, to relieve the laboring and oppressed internal organs and restore the blood to the surface. All agree that stimulants should be vigorously applied to the surface, to arouse the torpid capillaries and invite the blood to the surface. But here we are confronted with the fact that in profound congestions there are scarcely any stimuli which will make a sensible impression on the dor-

mant nerves or the torpid vessels. I know of but one agent which can be relied on in such cases, and that is chloroform. A handkerchief folded many double, and saturated with this agent and applied to the surface, seems to strike in to the deeper and less insensible nerves, and almost as soon as applied extorts a cry of pain, when it should be moved rapidly, beginning with the epigastrium and extending over the abdomen, and then up the spine. But before chloroform was known mustard-plasters, spearmint, pepper, hot stones, etc., were used, and no sensible impression was made until the consuming fires within were extinguished. For this purpose I have seen alcoholic liquors, camphor, pepper, opium, quinine, ammonia, etc., used time and again, but never with any benefit; but in bad cases, always with demonstrated injury. It is true, I have seen some cases recover under the use of these agents, but never one which was in a state of profound congestion. What, then, is the remedy?

Just here let me pause for a moment to pay a passing tribute to my honored father, Dr. Thos. B. Anderson, of Caroline County, Va., who, leaving the halls of the University of Pennsylvania, under the tutorage of Rush, Physick, Barton, Wistar, Dewees, and Hare, in 1810, ceased not to study and labor in his profession till he closed his career in 1871, in the 80th year of his age. It was he who, in 1812, first resorted to the use of ice in fevers, when it was considered almost an act of murder to do so. His giant intellect and independent and bold spirit well fitted him to grapple with disease in an obscure country district where no counsel could be had. Seeing the burning thirst and consuming heat which tortured his patients in this state of *apparent collapse*, he decided to disregard the teachings of the times and sunder the bonds of an inviolable routine, and pour into the stomachs of his patients an ample supply of powdered ice. It was administered with a tablespoon, and the patients urged to swallow it instantly, so that it should not melt in the mouth. At times they would be so far gone as scarcely to be able to swallow, but the grateful effect of the first deglutition would cause them to open wide their mouths and turn their wistful eyes for another supply. Spoonful after spoonful would be hurried down, until, generally, a half-gallon, more or less, would be given. After a quart or more was imbibed, the heat internally would subside, the perspiration cease, the pulse return to the superficial arteries, and warmth to the skin; and in half an hour reaction would be fully established. In such cases the febrile paroxysm would generally be of short duration, and on the first indication of a remission quinine would be given, but never before.

When but a boy I saw my first case of congestive chill, epispastics were applied externally, and quinine and stimulants given with an unsparing hand, but the internal fires glowed but the brighter, while the algidity and perspiration steadily increased. Alarmed at the imminence of impending dissolution, I hastily summoned my father to my aid. So soon as he reached the bedside he called for ice, and poured it down with an unsparing hand. To my surprise, in less than half an hour the pulse was restored, the perspiration dried up, and the heat diffused over the surface. In two hours the patient was taking quinine, and by the following day she was safely convalescent. Since that period I have treated hundreds of cases, and have never been better satisfied with the use of quinine in simple intermittent fever than I have with ice in congestive chill. In my extremity, in the above case, I had applied six epispastics to various parts of my patient, and, though they were prepared of the best ung. cantharides, and remained on for twelve hours, no sensible impression was made. But after reaction was established and the circulation equalized, vesication supervened, and severe and troublesome sores were the result.

One more case and I have done. Mrs. C., a Canadian lady of medium height but immense size, weighing about three hundred pounds, settled in the fever-belt of Hanover County, Va., in the year 1877 or 1878. Her husband and child had severe attacks of remittent fever, which were easily managed. Early in the morning I was hastily summoned to visit Mrs. C., twelve miles distant. Suspecting serious trouble, I was by her side in a little over an hour. Her flesh was cold, bedewed with perspiration, and almost of damson color. Her pulse was imperceptible at the wrist, while the heart-strokes were rapid and feeble. Her respiration was hurried and short; her countenance indicated a listless, dreamy calm, as if her faculties were absorbed in a profound revery. No ice being near, her husband was despatched for a supply. In the mean time hot bricks, mustard, pepper, spearmint bruised, and other stimuli were vigorously applied with no sensible effect. I then saturated a handkerchief with chloroform, and applied it to the epigastrium; almost instantaneously it seemed to penetrate the patulous mouths of

the sudoriferous glands, and reached the subcutaneous nerves. She cried out for its removal, and it was rapidly carried from point to point until her ponderous abdomen had been fully explored, and then the back was treated in the same way. The impression of chloroform on a perspiring surface is almost instantaneous and by no means evanescent. A half-hour elapsed before the ice arrived and was prepared for use, during which time the chloroform had stayed the progress of the congestion, and she seemed to be poised in an even balance. The ice was now poured in as rapidly as possible, greatly to her relief and comfort, and most satisfactorily, in the speedy relief of the congestion. In a half-hour the circulation was equalized and quinine was given, and she was restored to health.

Whatever agent may produce a chill,—and there are hundreds which may under favorable atmospherical and hygienic influences,—there is always a suspension of the functions of the organic nerve-centres, whereby secretion is suspended, the circulation is impeded, and there is an accumulation of an abnormal amount of blood in the vessels of the internal organs, and a diminution in those of the surface. The vital processes being suspended by a torpid condition of the nerve-centres which preside over these functions, the various constituents of the blood are massed in a heterogeneous conglomeration, and chemical forces come into vigorous exercise, generating every conceivable morbid product, from the simplest salt or acid to the most deadly ptomaine. In the mean time the evolution of heat from these rapid chemical changes increases the centripetal action, and hastens the march to a profound congestion. The use of stimulants, anodynes, or narcotics is calculated to increase the trouble and lessen the chances of recovery. Ice poured into the great central reservoir, the stomach, rapidly absorbs and renders latent the superfluous heat, gives tone to the exhausted nervous centres, sets free the pent-up nervous forces, puts in motion the torpid vessels, restores the vital forces, and thus equalizes the circulation.

In a practice of forty years, during which time I have seen hundreds of cases of congestive chill, I have witnessed only two deaths from this disease, and they were cases in which quinine had been freely given, and the nervous centres were thereby so obtunded that nothing would arouse them to action again. Whatever may be the pathology of congestive chill, or the *modus operandi* of ice, I am positively certain that no agents can be found in the range of materia medica so efficient for its relief as ice internally and chloroform externally,—both used promptly and heroically.

PHARMACOLOGICAL CHANGE IN ITS RELATION TO THERAPEUTIC ACTION.

By Joseph Schmidt, M.D., Philadelphia.

Second Paper.

IN my first paper I pointed out certain essential changes to which some of the most ordinarily exhibited drugs are liable previous to their use, and endeavored to thus establish a rational explanation for various inordinate or toxic phenomena occasionally observed after apparently therapeutic doses of routine medicines. Before passing to pharmacological changes wrought by chemical factors residing within the economy, the subject of chemical incompatibility claims a brief consideration, as numerous grave and even lethal results have been recorded as clearly traceable to the injudicious combination of incompatible chemicals.

The danger of explosion has to be particularly guarded against. The explosive tendencies of chlorate of potassium, when being triturated, are well known; it is also apt to explode in a state of solution, as shown by a case cited by the *Journal de Pharmacie*, where a gargle containing this salt, chloride of iron, and glycerin exploded in the pocket five minutes after its preparation, causing serious injuries to the bearer. A similar serious explosion is reported of a combination of chlorate of potassium, hypophosphite of calcium, and lactate of iron; simple trituration of hypophosphite of calcium cost the life of a young pharmaceutist. A solution of chromic acid in glycerin, a combination which is not infrequently prescribed, may, on being agitated, cause an explosion like nitro-glycerin. A mixture of iodine and ammonia ought to be cautiously handled, as iodic asphyxiating gas—a fulminating substance—may be generated; the same is true of chlorate of potassium and tannic acid, also of hydrochlorate of morphine. One cannot be too cautious in prescribing compositions containing easily oxidizable or reducible bodies, such as chlorates, hypophosphites, nitrates, iodine and ammonia, chromic acid, glycerin, permanganate of calcium, etc. The knowledge of chemical reaction, which every trained physician possesses, exempts me from dwelling explicitly on the drugs known to be incompatible, and therefore I

simply beg to recall their principal representatives.

It is improper to prescribe the following combinations:

1. Alkalies with acids, iodine, chlorine, fats, and balsams.

2. Acids with alkaline salts, neutral acetates, soaps, and sulphates.

3. Metallic salts with alkalies, preparations of sulphur, tannic acid, soaps, and alkaloids (acids are also incompatible with many salts, such as tartar emetic).

4. Oxides of silver, lead, and mercury with preparations of chlorine, iodine, and bromine (the salts of lead react also on sulphuric acid and soluble sulphates, those of silver on all reducing organic substances).

5. Tannic acid with alkaloids, metallic salts, etc. (tannic acid forms ink with salts of iron; is precipitated by glue).

6. Fatty oils with alkalies and inorganic acids.

7. Mucilaginous or gummous substances with subacetate of lead, nitrate of silver, borax, and alcohol.

8. Ether and ethereal solutions with watery solutions and balsams.

The various decompositions and metamorphoses of medicinal substances within the animal economy not ordinarily admitting of direct examination, their proper understanding is manifestly fraught with far greater difficulties than are encountered in the case of drugs outside of the body. This knowledge, however, which has not improperly been termed physiological chemistry, is of prime importance to the therapeutist. As the majority of medicines owe their curative virtues to inherent chemical energy, and the animal organism consists of numerous elements of a chemical potentiality, the contact of drugs, under certain favorable conditions, with living tissue is constantly attended by definite molecular reconstruction. The degree of affinity, then, which a chemical agent entertains with the constituents of the body is the general criterion of its therapeutic action. The diversity of chemical conditions existing in different localities of the body is hence to be well considered. Tartar emetic, for example, although, like most metallic double salts, not precipitating albumen in a neutral solution, hence exerting no influence over it, coagulates albumen in the presence of free acids. If, then, this salt enters the circulation and reaches the vascular supply of the gastric mucous membrane, which is separated from an acid fluid merely by a thin partition, or if the salt is introduced directly into the stomach, chemical and functional results will ensue, which, for want of favorable conditions, are impossible in a different locality. If tartar emetic, incorporated with an unctuous base, is rubbed into the skin, it likewise meets in the cutaneous glands with an acid fluid; hence localized effects, pustular inflammation, or glandular suppuration will be produced. In some instances it is possible for a drug to act *per se*, and also by the products of its decomposition, as in the case of iodide of potassium, which owes its medicinal virtues both to the salt itself and to the liberated iodine.

I beg now to discuss the most important alterations which medicines experience after their ingestion and in their onward march through the digestive and absorbent systems.

The limits of this paper, of course, preclude anything but generalized conclusions as to the pharmacological changes occurring in the human economy.

In the mouth, the usual first station of medicinal ingestion, drugs experience their first material alteration. The presence of a faintly alkaline body causes partial solution of solids and a combination with its alkaline constituents of any acid that may be introduced. Substances capable of reacting on albuminates will, of course, likewise satisfy here the demands of affinity. Alcoholic solutions frequently undergo decomposition in the mouth, the alcohol taking up water from the saliva and precipitating matters which the former previously held in solution. Starch, as is well known, is changed by the saliva into sugar (maltose), salicin, according to Städeler,* into saligenin and grape-sugar. It is highly probable that similar changes of other medicinal substances are also effected by the saliva, but we possess few definite data on this subject, which opens a certainly valuable avenue for future research. The generation of sulphide of hydrogen by dental caries or digestive derangements leads to the local deposit of sulphurets on the persistent introduction of metals, which, like iron and lead, are precipitable by this gas from alkaline solution. This reaction accounts for the bluish line on the gums observed in lead-poisoning.† As a rule, however, the medicines do not stay sufficiently long in the mouth, pharynx, or œsophagus to experience very pronounced alterations, excepting in the

* *Journal f. prakt. Chemie*, Bd. lxxii. p. 350.

† *Vide* THERAPEUTIC GAZETTE, February, 1885, p. 128.

case of powerful chemical affinities, such as exerted by the concentrated mineral acids. Of far higher consideration to the physician are the pharmacological changes occurring in the stomach, where an acid liquid favors the formation of soluble salts. Many substances insoluble in water, but soluble in diluted acids, such as metallic oxides, free alkaloids, and others, are here dissolved, and combine with the acids of the gastric juice. Thus carbonates and cyanides are decomposed, and liberate carbonic and hydrocyanic acids. Metals which, like iron, decompose water in the presence of acids are dissolved, and generate hydrogen. On the other hand, the salts of the gastric juice may react on the ingested agents; thus the chlorides of the gastric juice render certain salts of silver, lead, and mercury insoluble, other preparations of mercury again soluble.

The most numerous changes, however, are produced by the gastric albuminoids. Nearly all oxides of the heavy metals enter into so firm a union with the albuminoids as to become insoluble by diluted acids or alkaline salts. If the albuminoids of the gastric juice be insufficient to effect these combinations, the gastric walls themselves are acted upon, and more or less extensively disintegrated.

The action of the intestinal fluids, the pancreatic juice, and the bile on medicinal substances is also sufficiently marked to exact our attention. Both liquids neutralize the free acid of the gastric juice, dissolve various substances insoluble in the gastric juice, and emulsify fats. The bile dissolves certain drugs which previously remained intact, such as convolvuline, sulphur, and others. The pancreatic juice continues the change of starch into sugar begun by the saliva, and also renders the albuminoids more adapted for absorption into the blood. The process of organic decomposition in the intestinal tract, besides, causes various oxidations and reductions.

The ultimate changes of many therapeutic agents after their entrance into the circulation are still enshrouded in obscurity. The oxygen of the blood, loosely attached to the hæmoglobine, of course produces oxidations whenever possible. Sugar is almost completely decomposed, unless large quantities are directly introduced into the blood, when a considerable portion of it escapes into the urine. Alcohol is wholly or nearly burnt up in the system. Salicine is changed into salicylous and salicylic acid (as outside of the body by sulphuric acid and chromate of potassium), which communicates to the urine the odor of violets, tannic acid into gallic acid, benzoic and cinnamic acid into hippuric acid, turpentine into a volatile oil. It is noteworthy that certain substances introduced separately into the blood may there unite, and thus produce effects of which neither by itself is capable. This has been experimentally demonstrated by Bernard in the case of amygdalin and emulsin, which, if injected separately into the blood, form prussic acid, as by their union in water outside of the system. The same result takes place if amygdalin is introduced into the stomach and emulsin into the blood.

The question naturally arises whether the identical chemical processes observed under certain definite conditions outside of the body also take place within the blood under the same conditions. If this be the case, many of our most valuable remedies would be decomposed by the blood and rendered insoluble. All the mineral salts would be precipitated by the free soda of that fluid; acetate of lead would be instantly decomposed by the sulphates, and nitrate of silver precipitated by the chlorides. I believe that the vital forces, as well as the viscidity of the plasma, exert a retarding or controlling influence over such chemical tendencies.

The knowledge of pharmacological changes, both without and within the economy, is of paramount importance for our estimation of therapeutic effects; for we cannot judge of medicines in the form and quantity they represent previous to their ingestion, but solely in the form and quantity in which they exert their medicinal impression. Strictly speaking, then, we cannot discuss the therapeutic action of calomel, which as such remains totally inactive, but only regard its soluble derivatives formed within the organism.

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NOTE ON HÆMOPTYSIS.

By C. M. Fenn, M.D., San Diego, Cal.

If Dr. Drysdale is fully reported in your recent review of "The Significance and Treatment of Hæmoptysis," he has omitted one source, if not two, of hemorrhage from the lungs which seems to me worthy of note. I refer to bronchial hemorrhage, of which two fatal cases have come under my observation. I may perhaps best illustrate the point by briefly stating the facts.

January, 1876, Captain S. W. R., aged 51,

whaler, was admitted to the hospital under my charge for chronic pneumonia. The area of dulness, especially over front of right lung, was extensive at the time of his admission. There were persistent cough, accompanied usually with rusty sputum, and debility, which kept him in bed most of the time. Resolution, however, progressed until the front chest became resonant again. As he preferred to lie on his back, not much attention was paid to the posterior portion of the lung.

March 21, after eating a hearty dinner, he was attacked with a hemorrhage which rapidly put an end to his life.

The necropsy revealed extensive infiltration of the posterior part of the lung, and tubes filled with congested mucous membrane. The source of hemorrhage was traced to some of these. (If the case had been published, as then contemplated, it would have been the first on record. Some months later a case appeared in the *Amer. Journal of Med. Sciences*, for which priority was claimed.)

A second case occurred in the person of E. W. M. R., rancher, aged 45, who consulted me, October 11, 1878, about a chronic cough. He was known as somewhat of a "crank," and at this time was of light weight, as a result, possibly, of low diet. There was no expectoration, no marked dulness upon percussion, nor evident signs of pulmonary tuberculosis. My impression then was that there was some lesion (irritation) of the nerves.

A copious hemorrhage in January was followed by a second, April 12, 1879, which proved immediately fatal.

A necropsy eight hours after death disclosed simply an intense congestion of several bronchial tubes, whence the blood undoubtedly came. Otherwise the lungs were normal in appearance.

If no further cases have been reported since the date named above, the three instances noted are the first on record, and, in the opinion of the writer, are sufficient to place this lesion of the bronchial mucous membrane among the sources of hæmoptysis.

THE PHYSIOLOGICAL ACTION OF COCAINE AND OF ITS ANALOGUE, BRUCINE.

By Thos. J. Mays, M.D., Philadelphia.*

QUITE recently I undertook to investigate the physiological action of cocaine, not with a view of adding anything new to its already extensive literature, but chiefly for the purpose of personal familiarization with the physiological behavior of the drug. Its action in many respects was so striking and so different from most other drugs previously investigated, that it seemed to me to stand isolated in the experimental world, as it actually did in the clinical field. Further inquiry, however, showed that there is another agent which behaves very much in the same manner, and which shares the anæsthetic property of cocaine, although probably to a less degree. I have no doubt that further research with the same, or perhaps other and superior methods, will succeed in showing that there are still other drugs which have the power of allaying local sensibility in common with cocaine. The agent alluded to is brucine, an alkaloid contained in the seeds of strychnos nux vomica, and a twin sister of strychnine. To give the data of the investigation in their true order, the necessary points in the action of cocaine bearing on that of brucine will first be given, after which the experimental details of brucine will be presented.

HYDROCHLORATE OF COCAINE.

Action on Frog's Ventricle.—Its action on the isolated ventricle agrees in some and differs in other respects with many of the agents which I had previously investigated.† In its minimum dose, which was ascertained to be 1 to 160,000,—*i.e.*, 1 part of cocaine to 160,000 parts of a two per cent. blood solution,—it gives stronger and more vigorous pulsations than the two per cent. solution of blood alone can give, as is shown by *a* and *b* of Fig. 1.

It also affects the conductivity of the ventricle like ammonia, soda, digitaline, caffeine, morphine, delphinine, etc.,—*i.e.*, in minimum doses it enhances the nervous irritability, and in maximum doses, or in continued minimum doses, the nervous irritability is reduced to zero; but then, unlike the above-named agents, it arrests the heart in diastole, and not in systole, as they do, or cause the heart to become wild and unmanageable, as some of them do, but it gently calms the heart down until it is completely arrested, when, as soon as it is liberated from the influence of poisonous doses, it rebounds and pulsates as before. In Fig. 2 is shown the characteristic arrest of the heart by maximum doses of cocaine (1 to 1000) and by maximum doses of digitaline,

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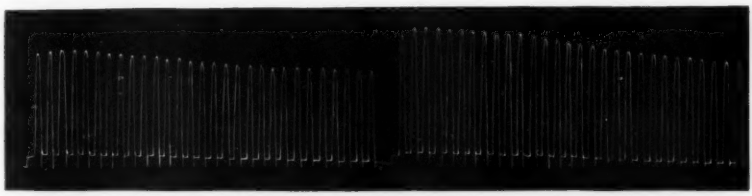
† See my article on the "Action and Antagonism of some Drugs on Frog's Ventricle," Therapeutic Gazette, February, 1885.

the latter being selected as a fair specimen of those agents which cause systolic arrest. The tracing (*a*) given by cocaine maintains a parallel position to the abscissa, while (*b*) that given by digitaline rises far above the abscissa, showing that during the process of arrest the heart is most firmly contracted.

Another characteristic of cocaine is the suddenness with which it depresses the nervous irritability of the heart. In the space of a few minutes the minimum stimulus of the induction apparatus sinks many centimetres, showing that it blunts the impressibility of the heart in a manner similar to that with which it is known to blunt the sensibility of man.



a. *b.*

Fig. 1.—*a*, tracing given by two per cent. blood solution alone.
b, tracing given by 1 part of cocaine added to 160,000 parts of two per cent. blood solution.

a *b*

Fig. 2.—*a*, tracing of cocaine arrest of the frog's heart.
b, tracing of digitaline arrest of the frog's heart.

General Action on the Frog.—My observations on the general action of cocaine on the frog tally with those of other observers. Subcutaneous introduction of 1.0 ccm. of one-half per cent. solution is followed in a few minutes by general convulsions, and afterwards by general hyperæsthesia. The convulsions are undoubtedly spinal, since they are produced and continued after the medulla is divided. The general action of cocaine does not diminish general sensibility. When smaller doses are given, a stage of motor paralysis precedes that of convulsions. In still smaller doses the convulsions are hardly pronounced, or do not exist at all. Respiration ceases before cardiac action.

In order to make an intelligent comparison between its general action and that of brucine, a few experiments will be detailed here.

Experiment 1.—Made for the purpose of testing the general influence of cocaine on the frog. Frog small, but active. Respiration 56 per minute.

9.35 A.M. Injected 1 ccm. of one-half per cent. solution of cocaine (grain $\frac{1}{12}$) subcutaneously.
9.40 A.M. Respiration 42; jumps on being touched.
9.41 A.M. Left anterior foot stretched to one side.
9.42 A.M. Begins to drag posterior extremities; anterior legs normal.
9.43 A.M. Remains on back and croaks.
9.44 A.M. Respiration 32; moves legs on pinching, and makes unsuccessful efforts to get off back.
9.45 A.M. Lies with outstretched legs.
9.47 A.M. Still has power to raise body with anterior extremities, but posterior extremities are outstretched and motionless.
9.50 A.M. No motion on pinching hind legs, but moves hind legs and whole body when anterior legs are pinched; croaks; becomes convulsed.
10.00 A.M. Posterior extremities are paralyzed; respires only occasionally.
10.02 A.M. Motion only in anterior extremities.
1.10 P.M. Heart arrested in diastole; filled with black blood.

Experiment 2.—To test large doses of cocaine injected subcutaneously. Frog medium size. Respiration 50 per minute.

9.37 A.M. Injected 2 ccm. of one-half per cent. solution of cocaine (1/6 grain) in left back.
9.40 A.M. Spontaneous convulsions.
9.45 A.M. Convulsions continue; respiration spasmodic.
9.50 A.M. Spasms not continuous, but occur at intervals of twenty or thirty seconds.
10.00 A.M. Touching any part of body produces spasm.
10.10 A.M. Lies flat on belly.

11.00 A.M. Lies helpless in any position.
11.30 A.M. Occasional spasms only; respiration ceased.
12.00 M. Division of medulla; spasms continue.
12.15 P.M. Tendency to spasms disappearing.
12.25 P.M. Spasms ceased; completely paralyzed.
12.30 P.M. Heart pulsations, 22.

Local Action on Frog.—At the seat of hypodermic injection or of local application reflex sensibility is always diminished.

Local Action on Man.—The invariable impairment of local sensibility in man is too well known to have attention directed to it here.

BRUCINE.*

The action of this drug was always regarded as being identical in kind to that of strychnine, only differing in degree. When I first tested its action on the frog's ventricle it behaved so similarly to the action of cocaine on the same organ that I ventured to give it a more thorough trial, with a view of ascertaining whether it had any power like cocaine to deaden sensibility. It was soon found, however, that the ordinary preparations in the market were worthless for the purpose sought, since they invariably brought out the strychnine effects soon after the beginning or near the termination of the experiment, no matter how small the quantity used, although in most instances there was some evidence of anæsthesia. After confronting considerable difficulty I succeeded, through the advice of Dr. Squibb, of Brooklyn, in obtaining a very pure specimen of the drug from the Chas. T. White Chemical Company, of New York City, to whom my thanks are due for the kindness and aid which they extended to me throughout this investigation.

Its Action on the Frog's Ventricle.—Its effects in minimum doses of 1 to 160,000—*i.e.*, 1 part of brucine to 160,000 parts of a two per cent. blood solution—were markedly stimulant, as is shown in Fig. 3: *a* shows the tracing which was given by the two per cent. blood solution alone, while *b* marks the action of 160,000 parts of same blood with one part of brucine superadded.

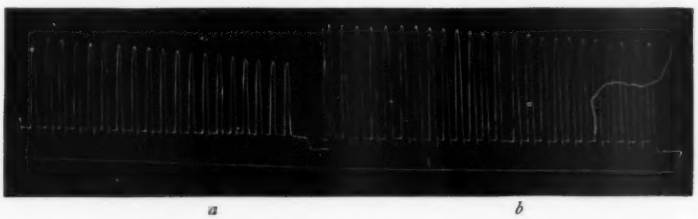


Fig. 3.—*a* represents tracing given by two per cent. solution of blood alone. *b* represents tracing given by 1 part of brucine added to 160,000 parts of two per cent. blood solution.

Fig. 4.—*a* indicates the brucine and *b* the digitaline arrest.

Nearly all the agents previously investigated which had a special affinity for the conductivity of the heart arrested it in systole, while brucine, contrary to this observation, and in consonance with the action of cocaine, influences conductivity, but arrests the heart in diastole. This is illustrated in Fig. 4, where the brucine arrest is contrasted with that of digitaline. The heart was first arrested with brucine (*a*) and immediately afterwards with digitaline (*b*).

* The literature on brucine is very meagre, and I am only able to give the following references:

Prévost: "Action physiologique de la Brucine." C. R. Soc. de Biol., 14 Octobre, 1882. L. Wintzenried: "Recherches experimentales relatives à l'Action physiol. de la Brucine." Diss. Genève, 1882. Brunton: *Amer. Assoc. Jour.*, May 2, 1885, in London letter.

Again, the suddenness with which it depresses the conductivity or blunts the receptivity of the heart is similar to the action of cocaine, as well as its transient disturbing influence on the heart in maximum or in continued minimum doses. These observations led me to believe that its local and general action may be analogous to that of cocaine, and I am able to state that this assumption has been confirmed both by clinical and further physiological research.

General Action on the Frog.—In my observations on the general action of brucine a number of experiments were made, but only two, which are typical of the rest, will be given here.

Experiment 3.—Made for the purpose of testing the influence of brucine on the frog when subcutaneously injected. Frog small, but active. Respiration 58 per minute.

11.21 A.M. Injected in left back 0.05 ccm. of one per cent. solution of brucine (½ mg. or $\frac{1}{68}$ grain).
11.28 A.M. Respiration 30; frog active.
11.34 A.M. Repeated the same dose in right back.
11.35 A.M. Less active; head inclines to droop.
11.36 A.M. Respiration 28.
11.37 A.M. Croaks, and is slightly paralyzed in posterior extremities.
11.38 A.M. When leg is drawn out allows it to remain in that position for a minute.
11.39 A.M. Left hind leg lies outstretched and paralyzed, but is withdrawn slowly when touched sharply.
11.42 A.M. Respiration 14.
11.43 A.M. Both hind legs lying outstretched and flaccid; the right only withdrawn when touched.
11.44 A.M. Remains on back and croaks.
11.45 A.M. Neither leg moved when touched.
11.47 A.M. Lies flat on belly.
11.52 A.M Respiration 8.
11.53 A.M. Slight twitches over whole body when legs or webs are touched; hyperæsthesia.
11.55 A.M. Strong blow of breath on body will also call forth a general twitch; respiration ceased.
12.15 P.M. Slight spontaneous momentary spasms.
2.00 P.M. Spasms more pronounced and general.
3.00 P.M. Medulla divided.
3.15 P.M. Spasms still continue.
3.30 P.M. Spasms ceased.
4.00 P.M. Pithed; pulsations of heart 48.

Experiment 4.—Made for the purpose of testing a somewhat larger dose of brucine given subcutaneously. Frog small, and active. Respiration 60 per minute.

4.22 P.M. Injected 0.2 ccm. of one per cent. solution of brucine (2 mg. or $\frac{1}{21}$ gr.) in left back.
4.23 P.M. Symptoms of motor paralysis in posterior extremities.
4.25 P.M. Respiration 54.
4.26 P.M. Decided loss of motion in posterior extremities.
4.27 P.M. Convulsions; legs outstretched and stiff; rolls on back; respiration ceased.
4.30 P.M. Spasm can be induced by touch; general hyperæsthesia.
4.35 P.M. Lies outstretched and flaccid on belly, and a very slight spasm can only be induced by touch; tendency to spasm greatly lessened.
4.45 P.M. Legs twitch when pinched hard; lies flaccid and paralyzed.
4.55 P.M. No response to touch or pinching.
5.55 P.M. Heart arrested in diastole.

These experiments point out that in its general action brucine provokes a short period of at least motor paralysis, which is succeeded by convulsions; that the loss of motion first affects the posterior extremities; that the convulsions are spinal; that there is no marked impairment of general sensibility, but, on the contrary, preceding and during the convulsive stage there is confirmed hyperæsthesia, which is succeeded by complete motor and sensory paralysis; and, finally, that respiration ceases before the heart is arrested.

Local Action on Reflex Frog.—In these experiments the secondary coil of an induction apparatus is joined to a Du Bois key, this is connected with a Pohl's commutator, and from here two wires were joined to each foot by means of a rubber band, thus bringing each foot into a separate electric circuit. In due time, after the brain of the frog was destroyed, the irritability of each leg was tested with single induction shocks, and the minimum stimulus required to call forth reflex motion noted. After which the leg was from time to time immersed in a solution of brucine, or enveloped with blotting-paper saturated with same solution, and the minimum reflex irritability tested at intervals.

Experiment 5.—Reflex frog; medium size; four per cent. solution of brucine employed.

Minimum reflex irritability of		Left Leg.	Right Leg.
8.46 A.M.	Before immersion.....	10.0	9.0
8.56 A.M.	Left leg immersed in solution for eight minutes.		
9.00.....		9.0	9.0
9.03.....		8.5	9.0
9.06.....		8.5	9.0
9.09.....		7.5	9.0
9.12.....		7.0	9.0
9.15.....		7.0	9.0
9.18.....		6.5	9.0
9.21.....		6.0	9.0
9.24.....		6.0	9.0
9.27.....		6.0	9.0
9.30.....		6.0	9.0
	Left leg immersed again for five minutes.		

Minimum reflex irritability of	Left Leg.	Right Leg.
9.36	5.5	9.0
9.39	4.5	9.0
9.43	4.0	8.5
9.46	3.5	8.0
9.49	3.0	8.0
9.51	3.0	8.0
9.53	2.5	8.0
9.56	2.0	7.5
9.59	1.5	7.5
10.02	1.0	3.5
10.05	0.0	3.5
10.08 No reflex	0.0	0.0

10.09 A.M. No reflex when posterior, but when anterior legs are pinched both hind legs are withdrawn, showing that they still have reflex power when the afferent impulse is carried to the spinal centre through the sensory nerves of the anterior extremities.

10.18 A.M. Reflex action completely paralyzed; no motion on pinching any part of the body; frog lies flaccid and motionless on glass plate.

9.20 A.M. (Next day.) No reflex action; heart's pulsations 18.

12.00 P.M. Heart arrested in diastole; no spasms throughout.

Experiment 6.—Reflex frog; medium size; ten per cent. solution employed by means of saturated blotting-paper.

Minimum reflex irritability of	Left Leg.	Right Leg.
6.09 P.M. Before application of brucine	8.5	8.5
Blotting-paper applied now, and during intervals of observation.		
6.11 P.M.	8.5	8.5
6.13	8.0	8.5
6.15	7.5	8.5
6.17	7.0	8.5
6.19	6.5	8.5
6.21	6.5	8.5
6.23	6.0	8.5
6.25	6.0	8.5
6.27	6.0	8.5
6.29	5.5	8.5
6.31	5.0	8.5
6.33	4.5	8.0
6.35	4.0	8.0
6.37	3.5	8.0
6.39	3.0	8.0
6.41	2.5	8.0
6.43	2.0	8.0
6.45	2.0	8.0
6.47	2.0	8.0
6.49	2.0	8.0
6.51	1.5	8.0
6.53	1.0	8.0
6.55	0.5	8.0
6.57	0.5	8.0
6.59	0.5	7.5
7.01	0.0	7.5
7.03	0.0	7.5
7.05	0.0	7.5
7.07 Partial reflex	0.0	7.5
7.09 " "	0.0	7.0
7.11 " "	0.0	7.0
7.13 Partial reflex.	0.0	7.0
7.15 " "	0.0	7.0
7.17 No reflex	0.0	7.0
7.21 "	0.0	7.0
7.30 "	0.0	0.0

7.31 P.M. Pinching web of left foot calls forth no response, but on pinching anterior legs both hind legs are drawn up and flexed.

7.33 P.M. Very sensitive in anterior part of the body; both hind legs are stretched out and paralyzed; both are drawn up when anterior extremities are pinched.

8.15 P.M. No reflex motion in posterior extremities when strongly stimulated or pinched, but only slight reflex motion in them when anterior legs are pinched.

8.20 P.M. Electric stimulus, which is not able to call forth any motion when applied to posterior extremities, will cause contraction in them when applied in same strength to anterior extremities; no spasm or convulsion throughout the whole experiment, although the brucine was certainly absorbed during the experiment.

These experiments prove without a doubt that reflex action is disturbed not by virtue of motor, but of sensory paralysis, when brucine is locally applied; that it not only produces sensory paralysis in the leg to which it is applied, but by gradual absorption through the skin it also affects the sensibility of the opposite leg, and, finally, that of the whole body; and that paralysis of motion follows that of sensation.

Other experiments, the details of which it is not necessary to give here, also showed that the local application of five per cent. solution to skin of frog in other parts of the body diminished sensibility.

Local Action on Man.—The benumbing action of brucine on the mucous membrane in health is not so prompt as that of cocaine in the same strength. I cannot account for this unless the former is more rapidly absorbed and diffused than the latter. A ten per cent. solution will relieve the scalding on the tongue caused by the application of Cayenne pepper; and a five per cent. solution acts very readily in aphthæ of the mouth, applied with a camel's-hair brush. The same solution also cured a toothache in an old stump in a very few minutes.

It is, however, on the cutaneous surface where its action is the most decided and definite. On the back of the hand even the weaker solutions produce a benumbing effect, while a ten or a twenty per cent. solution causes a very marked impairment of sensibility. This is best demonstrated if it is applied to a hairy part of the hand or arm, and allowed to remain for ten or fifteen minutes,

and then the sensibility of the spot compared with that of a neighboring one by pulling the hair. Applied croton oil liniment to arm, and in the course of six hours two applications of a five per cent. solution of brucine to the part affected relieved the itching shortly, and the pustulation also seemed to disappear from that time on. The same solution applied to an intense superficial cutaneous pain, caused by a too lengthy application of a mustard-plaster, brought immediate ease to the patient. I applied a five per cent. solution in two cases of pronounced cutaneous pruritus,—which was in all probability a reflected condition dependent on some uterine irritation,—with marked relief in both of them. The two cases were nearly identical, and hence I will only detail one, as follows:

May 13, 1885.—Mrs. H., aged 36, has been suffering with a violent itching of the skin, only during the night, for the last year and a half. It is worst just before menstruation. It began in the groins and loins, then extended down both lower limbs, and finally up to her head. She says the itching is terrible, and comes on every night about bedtime, and often keeps her awake nearly a whole night; and so she gets up in the morning as tired as she was when she lay down.

Treatment.—Ordered a five per cent. solution of brucine to be brushed over the affected parts on going to bed, and to be repeated every half-hour until relief is afforded.

May 15.—She reports to-day that she applied the brucine for the last two nights,—the first night three times, and the second night only once,—and it relieved the itching entirely. She says she had not slept so well for a long time as she did the last two nights.

May 19.—She reports that one application on going to bed sufficiently allays all itching for that night.

May 21.—Still improving.

General Remarks.—To obtain the full anæsthetic property of brucine it is important to possess a pure article, and it is needless to point out that almost all the commercial specimens of the drug contain a large percentage of strychnine, and are therefore worthless, and may be even dangerous for this purpose. I do not wish to maintain that absolutely pure brucine, even if it can be obtained in this state, is entirely harmless, especially since some chemists hold that it is very difficult, if not impossible, to get brucine entirely free from strychnine; but I am convinced that there is a marked difference in the purity of the various preparations which I used; and that the one which gave the best results brought out the anæsthetic property of brucine in direct proportion to the absence of the strychnine or convulsive effects.

My opportunity for testing its clinical value has been limited to the above detailed observations, but it will probably prove to be a valuable agent in the treatment of irritable and superficial affections of the skin, and, perhaps, also of the mucous membranes. Of this last I would speak guardedly, for it seems to act more promptly on the outer than on the inner coverings of the body.

It is very readily applied with a small sponge or camel's-hair brush, and from ten to fifteen drops can be employed at a time, and even more if the affected spot is extensive. If the weaker solutions are inefficient the stronger ones can be used. It shows its effects in from five to ten minutes. In making a solution of the alkaloid five drops of hydrochloric or of sulphuric acid must be added to each gramme. It is preferable to use either the nitrate or the sulphate of the alkaloid.

151 N. Fifteenth St., May 21, 1885.

THE TREATMENT OF TYPHOID FEVER IN NEW YORK HOSPITALS.

By Sollace Mitchell, M.D., New York.

IN passing through the wards of Bellevue Hospital, or in glancing over its history books, one's attention is at once arrested by the great number of cases of typhoid fever. The explanation of this is that Bellevue draws its patients from the poor people living in the tenement- and lodging-houses; and it is from these quarters that the most of the typhoid fever comes. This vast amount of material furnishes a field for the trial of everything new, and admits of comparisons between old and new methods of treatment.

For this reason, therefore, the treatment practised at Bellevue Hospital will be spoken of at length.

The typhoid fever patient, upon his admission, is put upon a milk diet, and all other treatment is purely symptomatic.

The most important object of treatment is the reduction of the body heat when it reaches 103° F., and to accomplish this many different things have been used. Quinine or salicylate of sodium had been used quite extensively until last summer, when antipyrine was brought forward; then a series of cases were noted where the antipyrine was used.

The results obtained from the use of the antipyrine, though not what were hoped for, were sufficiently encouraging to warrant its further use; and as this new antipyretic remedy has been used more extensively here than at any other of the New York hospitals, it will be of interest to note their method of using it.

When first introduced it was employed for the reduction of high temperatures from any cause whatsoever, but experience has shown that it has little effect except in typhoid fever and pneumonia; upon the high temperature of erysipelas it seems to make no impression. So that now the use of antipyrine in this hospital is restricted to typhoid fever and pneumonia. When the temperature reaches 103°, an alcohol sponge-bath is given, and if the temperature rises beyond this limit, then antipyrine, gr. xx; whiskey, ℥ss; tr. digitalis, ♏v; are administered, and if in an hour the patient is not getting moist, gr. x more of the antipyrine are given with whiskey ℥ss.

The following table is taken from the history of a typhoid fever case:

12 M.	103⅘°.	Antipyrine, gr. xx; whiskey, ℥ss; tr. digitalis, ♏v.
2 P.M.	100⅕°.	Patient perspiring profusely.
4 P.M.	100½°.	
8 P.M.	100½°.	
12 P.M.	100½°.	

The antipyrine causes the temperature to fall, but at the same time quickens and weakens the pulse, and to counteract this tendency some stimulant is always given with it. But antipyrine does not always operate as beautifully as shown by the foregoing table; sometimes, in spite of repeated doses, the temperature remains high, and then quinine, gr. xv, is given; this will often cause the temperature to fall, especially if a malarial element is present. At times, however, all antipyretic medication fails, and then the case may be found to yield to a simple alcohol sponge-bath.

It must not be thought for a moment that the various methods of cooling the body by the use of water have been suffered to fall into disuse. The favorite way of using it here is in combination with alcohol in the sponge-bath. A few months since one of the house physicians made a careful comparison of the relative merits of the metallic and rubber coils as used in the reduction of temperature; at the time of writing it is impossible to get his exact statistics, but he proved to his own satisfaction that the metallic coil was far superior to the rubber, since the latter, being a poor conductor, did not carry away the body heat as rapidly; and this was demonstrated by taking the temperature of the water used in each coil, both as it entered the tubing and as it ran out, and then computing the number of heat units carried away by each coil during a given time.

The ice-cap is often employed when head-symptoms become manifest; Kibby's cot and the ordinary sprinkling-pot are made use of in severe cases; a great reduction is sometimes effected by placing ice-bags over the femoral veins; indeed, this often proves very agreeable to the patient. Immersion is never practised.

Stimulants are administered from the start, if the patient's condition calls for them; beginning with whiskey, ℥ss t.i.d., the dose is gradually increased as the patient grows more feeble, and ℥ss is given hourly, if necessary.

Besides the alcoholic stimulants, carbonate of ammonia in gr. v doses, and tr. digitalis in ♏ v doses, and Hoffmann's anodyne are employed, the condition of the patient's heart governing their use. Diarrhœa is not treated unless the movements become excessive, and then opiates are used, oftentimes combined with bismuth.

Constipation is not permitted to continue beyond a few days, but is overcome by simple soap and water enemata containing turpentine.

Tympanites is met with turpentine internally, ♏x q.4.h.; turpentine stupes upon the abdomen; relief is often given by passing a rectal tube up the bowel and allowing the gas to escape, or by giving an enema containing turpentine.

Hemorrhages from the bowels are rarely seen, but when present are treated with fl. ext. ergot, lead and opium pill, gallic acid, ice-cloths upon the abdomen, or some other of the remedies usual in such cases.

Liquid diet is of the utmost importance; milk and eggs are especially depended upon, the milk being given with aq. calcis, or if the stomach is very weak, the milk is first peptonized; it is given at intervals of two hours, and about two quarts in the twenty-four hours. The eggs are beaten up raw with whiskey and given two or three times a day. The nurses are particular to prevent the accumulation of sordes upon the teeth, and the patient's mouth is frequently rinsed with water, to which a few drops of sozodont have been added; this greatly adds to the patient's feeling of comfort.

Bed-sores are guarded against by employing scrupulous cleanliness, and occasionally bathing with alcohol and water such projecting parts as the ischia, tuberosities, malleoli, and os calcis. The bladder is carefully watched, and the catheter used, if necessary. If the stomach become irritable the carbonic water is used, being placed in siphons at the patient's bedside; if this fails to quiet the stomach, then it is given rest, and the patient is fed by means of nutritive enemata.

Great care is taken to disinfect the patient's dejections with sulphate of iron. During convalescence the diet is the main thing to watch, the patient gradually passing from liquid to solid food; tinct. ferr. chlor. is then given, gtt. x t.i.d.

St. Vincent's Hospital.—Upon admission the patient is given quinine, gr. v; whiskey, ʒi; ammon. carb., gr. v, t.i.d.; and in addition are given quinine, gr. x, and sol. morph. U. S., ʒij, at night. This is given as routine treatment, and special symptoms are met as they arise. The quinine is given for its modifying effect upon the general run of temperature during the course of the disease, and not with any idea of abridging its duration. No attempt is made to reduce the body heat until it reaches 104°, and then antipyretic doses (gr. xx) of quinine are given, together with sponging and baths.

Antipyrine has never been used in this hospital. Milk diet and plenty of fresh air are considered of the utmost importance. As soon as any evidence of heart-failure is noticed, the stimulants are increased up to the full limit. Other symptoms are met in much the same way as at Bellevue.

Emigrant's Hospital, Ward's Island.—Here a great amount of typhoid fever is treated with splendid results, and the treatment may be summed up in three words,—milk, stimulants, antipyrine.

Antipyrine, gr. xx, is given as soon as the temperature goes beyond 103°, and then it is kept up in gr. x doses q.1.h. until the temperature falls below 103°, which, the house physician says, almost invariably occurs after two or three doses. They have never seen any bad effects from the antipyrine, and are very enthusiastic in their praises of it. Intestinal hemorrhages are of the rarest occurrence. The treatment followed at Bellevue Hospital is in the main that of Professors Flint and Janeway, who are both visiting physicians to that institution.

BELLEVUE HOSPITAL, NEW YORK CITY.

TANNATE OF CANNABINE.

By H. C. WOOD, M.D.

I HAVE to thank Mr. Merck, of Darmstadt, for some grammes of the tannate of cannabine, whose alleged hypnotic virtues I have thus been able to test. It is evident from the dose which is habitually given of this drug that it does not represent the activity of the cannabis indica as has been claimed for it. An active preparation of the cannabis is efficient in doses of a fraction of a grain. I have given of the tannate to a number of patients twenty grains a day, and have not been able to perceive any distinct effect other than in some cases slight drowsiness, and in one or two cases of chorea an apparent lessening of the movements. The powder is readily taken in doses of ten grains; and, possibly, given in very large amount might have some feeble soporific influence. No disturbance of the stomach or bowels or other symptoms were produced by it.

THE PHYSIOLOGICAL AND THERAPEUTIC PROPERTIES OF HAMAMELIS VIRGINICA.

FROM an elaborate essay on Hamamelis Virginica by DR. HECTOR GUY, of Paris, France, we draw the following conclusions:

1. Hamamelis Virginica is not toxic. Employed in very large doses, it produces no symptoms of poisoning in the inferior animals. It does not appear to be toxic to man, despite the fact recorded by Dr. Camperdon, concerning which there would seem to have been some mistake.

2. It does not appear to have any special physiological action on the vascular system, heart, veins, or arteries.

3. No alkaloid has been discovered in the bark or leaves. The active principle is probably an essential oil.

4. Therapeutically, hamamelis has an uncertain action. It has, nevertheless, given good results in certain cases of hemorrhoids. As a hæmostatic its action has seemed demonstrated in some circumstances. The results obtained in varices are not conclusive.

5. Hamamelis Virginica does not seem to merit the enthusiasm bestowed on it by certain American physicians. It has no clearly-defined special action. At the same time, in certain cases its employment may be attended with success.—*Boston Med. and Surg. Journ.*, April 16, 1885.

The Therapeutic Gazette

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TREATMENT OF TYPHOID FEVER.

THIRD PAPER.

IN the very beginning of typhoid fever the old practice of exhibiting calomel, either in a single dose of 3 or 4 grains or in divided doses, has seemed to me to have a very good effect upon the secretions of the alimentary canal. After this I do not think drugs should be given, except to meet definite symptoms. Quinine may be used to help keep down the bodily temperature. The wide-spread belief that the alkaloid has some mysterious power of sustaining vital functions has not seemed to me to be well founded, and the German method of administering a large dose three or four hours before the diurnal rise of temperature appears to be the best plan of use. I do not believe, however, that it is well to give more than 20 grains, and in practice rarely give more than 15. The very large amounts sometimes given, although more effective as an antipyretic, seem to augment the deafness and the cerebral symptoms, and to depress rather than stimulate the patient. Sweet spirits of nitre, neutral mixture, and the other old-fashioned antifebrile diaphoretics may be employed out of respect for the traditions of the elders, but their use is comparable to the attempt to put out a Chicago fire with a Davidson's syringe. The use of antipyrine, kairine, and other antipyretic remedies is at present in a purely tentative stage. I am rather afraid of their producing exhaustion, but do not offer any opinion founded upon experience concerning them. When restlessness or insomnia occur, morphine should be given without hesitation.

A very important part of the medicinal treatment is that which is directed towards the abdominal canal. Nitrate of silver is strongly recommended by Professor William Pepper of this city for its local action on the intestinal ulcers, and is practically a safe remedy. There seems, however, little reason for believing that it can reach the intestinal ulcers, except in the inert forms of the chloride or the black oxide of silver, but with the hope of achieving this it should, if given at all, be administered in pills very heavily coated with gelatine or sugar, so that the salt may be defended from the gastric and intestinal juices.

A remedy which is much more powerful and certain is the oil of turpentine. In the method originally proposed by the late Dr. George B. Wood, it has seemed to me to have a direct positive action upon the intestinal symptoms of typhoid fever. There are two distinct periods at which it may be employed with advantage. The first of these is usually developed about the end of the second week. If at this time meteorism be severe, and the tongue very dry and brownish, turpentine is especially indicated; but, with a growing experience, I have become more and more addicted to the routine exhibition of the oil of turpentine at the period of the disease just mentioned. There is reason for believing that at this time the general stimulant action of the oil is of value, although its local influence upon the intestinal tract is probably more important. The volatile oils are absorbed very slowly, and are rather rapidly volatilized at the temperature of the body, so there can be no doubt but that when turpentine is given regularly, in doses of 10 or 15 drops every three or four hours, the whole intestinal tract is filled with it in the condition of vapor. It is therefore possible for it to reach the ulcerations in a liquid form, and also to be continually applied to them as a vapor.

There are certain cases of typhoid fever in which the convalescence is protracted by repeated attacks of diarrhœa. Under these circumstances it is always probable that there are unhealed ulcerations in the small intestines. Post-mortem examinations have been made of persons dying of other disease who had had typhoid fever six or even nine months previously, and in whom the typhoid ulcerations were found unhealed. Under these circumstances of recurring, persistent diarrhœa I have seen most happy effect from the use of the turpentine,—the diarrhœa usually being rapidly relieved and the intestinal digestion greatly improved by the use of the drug. I have experimented by treating a case for four or five days with turpentine; then when the improvement had commenced stopping the drug, and so soon as the patient dropped back into the old condition readministering the oil, and have seen successive periods of rise and fall in the condition of the patient absolutely corresponding with the administration of the drug. At this period of the disease the stimulant effect of the turpentine is not of importance.

It is sometimes forgotten that obstinate constipation may coexist even with a dangerous form of typhoid fever. Some years since a case was reported from one of the London hospitals in which the small intestine, after death, was found largely occupied by round and very hard fæcal masses, many of which rested directly upon the typhoid ulcers. Sim-

ilar cases to this are not very rare, and it is plain that under such circumstances life may depend upon the judicious use of purgatives. The best purgative under these circumstances is castor oil. My experience is that it is better for the typhoid-fever patient to have one or two soft passages during the course of the twenty-four hours, but beyond this diarrhœa should not be allowed to go. The best remedies that we have for checking an excessive abdominal flux are the vegetable astringents, combined with paregoric and chalk-mixture. Sometimes bismuth may be employed, especially where there is reason to believe that the diarrhœa is from general irritation of the intestines rather than from relaxation beyond the necessities of the local lesions. In bad cases acetate of lead may be employed, and sometimes even Monsel's salt. In cases of hemorrhage from the intestines this last drug, given in 3-grain doses enclosed in thick capsules, is probably our most efficient remedy. It may be used in connection with or have substituted for it oil of erigeron, oil of turpentine, ergot, or tannic acid, but I believe it remains the most powerful of our means of arresting hemorrhage from the bowel, though possibly the most apt in overdoses to do harm. If great tympanites develops at any time during the administration of styptic remedies, it may be better to take the risk of the hemorrhage than to push the astringents. I have seen life apparently saved by taking the bolder and most hazardous course in cases where the stomach rebelled. It must be remembered that the weeping hemorrhage rarely proves fatal, whilst a hemorrhage from ulceration of an artery can only in exceptional cases be controlled.

It is not proposed here to discuss the use of external cold baths in typhoid fever; suffice it to state that I have used cold-water treatment in some form ever since it first was employed in Europe, and have never yet seen any reason whatsoever for believing that it does harm. I once saw a case of pneumonia in which the physician had made the diagnosis of typhoid fever, and as the temperature was very high and the practitioner a somewhat reckless man, fresh from the hospitals, the baths had been used unmercifully. So far from the pneumonia being made worse, the effect of the baths was most happy. On the other hand, I am distinctly afraid of powerful antipyretic drugs; quinine, unless in excessive doses, is of very little service in affecting the bodily temperature; it is of value only as a means of deferring the rise after the use of cold, and for the purpose of helping defervescence in the latter stages of the disease; whilst salicylic acid, and probably antipyrine, are very powerful depressants, and, in my opinion, far more dangerous than the use of cold.

In the use of the cold-water treatment the physician should always first try that means which is least troublesome and least powerful, viz., the cold pack. This will be found usually sufficient in the cases of children, but it generally fails with adults. In employing it the patient should be wrapped up in a sheet wrung out of ice-water, and be laid upon an india-rubber blanket, without other covering. Water from an ordinary watering-pot should be every few minutes freely poured in a sprinkle over him. If, as is sometimes done, instead of the patient being thus exposed, and continually re-wetted, he is wrapped in the blanket, he receives not a cold, but a hot, pack, for the heat of the body soon raises the temperature of the sheet. In giving baths the prolonged immersion in water of a temperature of 85° or 90° F. is usually preferable to a shorter exposure in colder water. It is essential in all these procedures that the patient be not allowed to make any exertion himself, but be lifted from the bed into the bath-tub. The great difficulty with this method of treatment in private practice is the large amount of attendance which it requires, and the fact that it necessitates a portable bath-tub which can be brought to the bedside, with appliances for filling and emptying the same. A bath-tub made of heavy tin, or one of india-rubber, affords the cheapest portable contrivance. By means of an ordinary hose such a bath-tub can be filled from a distant spigot, and be emptied by reversing the hose out of the window so as to act as a siphon. When the circulation is feeble during any of these treatments, hot water may be applied in bottles or bags to the extremities, so as to maintain their warmth, while the general trunk temperature is reduced.

In my experience, the only contraindication to the use of cold water in typhoid fever is great feebleness of the circulation. It seems reasonable to expect that there should be a certain amount of driving of the blood from the external to the internal portions of the body, and theoretically, in cases of great weakness of the right heart, we should expect danger from pulmonic congestion; but I have employed the cold bath with distinct relief in one or two cases of very marked hydrostatic congestion of the lungs. It must be remem-

bered that one great cause of adynamia in such protracted pyrexia as typhoid fever is the heat itself, and if this heat be withdrawn, one great source of cardiac failure is removed. It is under these circumstances, when there is a fear of failure of the right heart, that digitalis is of special value. It may be given freely, with the remembrance, however, that Dr. Lauder Brunton has shown that high temperature interferes very greatly with the influence of digitalis upon the heart, and that an accumulation of the drug in the system which is scarcely felt during the fever may have an inordinate action if sudden defervescence occur.

A very valuable remedy in the crisis of typhoid fever is musk, but as this old drug is one of very great value, which has fallen into almost complete neglect, it is proposed in a future number to consider it in a separate article.

BROMIDE OF ETHYL.

THE paramount value of constitutional or local anæsthesia has naturally directed professional thought and research to the discovery of an anæsthetic which would not only possess promptness and constancy of action, but also safety and freedom from objectionable features. Of the host of pharmacological agents which claim anæsthetic virtues, but few have any substantial claims to the confidence of the profession. Leaving out of consideration such drugs as have only a topical analgesic action, the question as to the most eligible agent to induce profound constitutional anæsthesia is usually regarded as being limited to sulphuric ether and chloroform. The antagonistic views of the profession as to the superiority of one or the other are strangely pronounced. Thus we recall the diametrically opposite choice of two equally eminent teachers of a Philadelphia school regarding ether or chloroform in obstetrical practice. Aside from the unquestioned superiority of chloroform in the anæsthesia of children, ether must be regarded as the universal favorite on this side of the Atlantic, while in Europe, particularly in Germany, chloroform has always maintained its reputation.

Regarding cocaine, we entertain serious doubts that all the sanguine claims advanced in its behalf will be realized. At any rate, it is too early to critically discuss here the future rôle of cocaine as an anæsthetic.

The threatening cardiac depression and subsequent asphyctic danger noted occasionally without premonitory symptoms in chloroform-narcosis, not only contraindicate this anæsthetic in heart-affections, but also form a serious objection to its general exhibition. On the other hand, we have to regard the slowness of action and depressing sequelæ of the ether-inhalation as almost equally well-founded objections.

It was, then, with a natural interest that the professional world followed the encouraging clinical experiments conducted with a new anæsthetic, called hydrobromic ether, or bromide of ethyl.

We now desire to place before our readers the most salient points connected with the nature, history, and clinical worth of this anæsthetic.

Bromide of ethyl is a volatile, colorless, and almost uninflammable liquid, contrasting favorably in this respect with the highly inflammable and explosive ether; it has a hot, but saccharine, taste; its specific gravity is 1.42, and it boils at 104° F.

It was discovered by Serulas in 1827, and brought into notice as an anæsthetic by Nunnely, of Leeds, in 1849, and subsequently tried by Richardson, of London. To Turnbull and Levis, however, of Philadelphia, may be given the credit of having brought this great anæsthetic before the general medical public, though their merits are, strangely, not even alluded to in a pertinent paper of *Schmidt's Jahrbücher* (No. 204, 1884).

Rabuteau, experimenting with bromide of ethyl, found that plants saturated in its vapor die in two hours, and that frogs placed in a watery solution of it become completely anæsthetized. Death under its influence ensues by a toxic action on the respiratory centre. Gross says that an atmosphere containing eight-tenths per cent. of its vapor causes rapid anæsthesia. Sensibility ceases almost with the first inhalation, the pulse becomes accelerated, and the respiration labored, while the countenance is anything but reassuring. There is extreme muscular agitation for a moment, owing to the rapid transition from the stage of excitement to that of anæsthesia; these symptoms, however, are of very short duration, and recovery is invariably prompt. The anæsthetic should be administered like ether; 30 drops to 2 drachms are usually required to produce anæsthesia.* The time required for the elimi-

* "Of ether, 6 drachms to 1 f℥, and of chloroform, 1 to 4 drachms are required to produce anæsthesia."—*Stille's Therap. and Mat. Med.*

nation of the gas is but very short. There is rarely any after-effect, and most patients, on coming from under its influence, do not realize that they have taken it. There is no nausea, and the patient gets up from the table and walks to his room. This peculiar freedom from objectionable after-effects is signal recommendation for it. In the hospitals of Paris it has been used with encouraging results against the paroxysms of hysteria and epilepsy. On being exhibited daily for a period of two months, the inhalations lasting from fifteen to twenty minutes, a decrease of the number of paroxysms, in fact, a general improvement of the patients, could be obtained.

The formation of free carbon or of bromide of carbon, which, in a few instances, has given rise to grave accidents, can be prevented by mixing bromide of ethyl with five per cent. of olive oil, agitating and distilling the liquid successively. With this precaution we can obtain a safe and powerful anæsthetic, well adapted to cases of minor surgery which do not warrant the exhibition of ether and chloroform, and particularly eligible in obstetrical practice. Müller, of Bern, speaks well of this obstetrical anæsthetic, which he has used in sixteen cases of primiparæ and six of multiparæ. The drug causes no disgust by its odor, nor vomiting or nausea. Reddening of the face and acceleration of the pulse were frequently noted, thus giving the assurance that cerebral anæmia, as in the chloroform-syncope, need not be feared. The peculiar analgesic virtues were gratefully commented upon, especially by multiparæ. Haeckermann and Parnemann (*Schmidt's Jahrbücher*, No. 12, 1884) express themselves in equally eulogistic terms of the anæsthetic in confinements, so that extended clinical trials of it are well indicated to confirm its alleged virtues and popularize it in this country.

DISINFECTION.

So much light has been recently thrown upon the subject of disinfection by the labors of various investigators, but especially of the Committee of the American Public Health Association, that we think we are warranted in making a brief and somewhat dogmatic summing up of our present knowledge upon the subject of disinfection.

Substances which are used for the purpose of preventing the development of the so-called filth diseases may well be divided into,—

1. *Diluents.*—Air and water are the two great diluents.

2. *Absorbents.*—Dry earth and plaster of Paris may be considered as the most useful of the absorbents.

3. *Destructive Agents.*—Lime and sulphate of iron may be considered as the most important of the destructive agents, although of course, under certain circumstances, permanganate of potassium, caustic potash, mineral acids, and other chemicals may be employed with advantage.

4. *Antiseptics.*—Antiseptics are substances which have the power of checking the development of the organisms of putrefaction, but not of killing with certainty disease-germs. The most important of these substances are alcohol, sulphate of iron, and borax.

5. *Germicides.*—Germicides have the power of killing diseased germs. All germicidal agents are also antiseptic, but the antiseptics proper are not germicidal. The most important of the germicides are chlorine and substances containing it, corrosive sublimate, and permanganate of potassium. Carbolic and salicylic acids and iodoform, although useful for the dressing of wounds, are of very little value as germicides away from the body.

In regard to the disinfection of cesspools, privies, and other receptacles of filth, the first principle to be borne in mind is to prevent the accumulation of the filth. The outhouses in a large proportion of American farm and village dwellings are abominably foul. This should always be prevented by the use of absorbents mixed in most cases with a destructive agent like lime. A barrel of dry earth mixed with lime should be kept in the privy, and a small shovelful thrown into the heap of refuse after the use of the house. In this way the filth would be kept dry, free from odor, and the contents of the well could be removed without difficulty and be ready for the manure-heap. Under ordinary circumstances what is desirable in a privy is to prevent the development of disease. Desiccation and cleanliness are the two methods of doing this; but when the filth has once become infected, the scattering it without killing the germs is simply increasing the danger of the spread of the disease. Therefore, whenever there is any reason to believe that a privy has been infected with the germs of a definite disease, the method of procedure just detailed is not sufficient. The germs in the mass should be killed in accordance with instructions to be hereafter given. In regard to uninfected cesspools, it

must be remembered that putrefaction is nature's method of getting rid of filth, and antiseptics by stopping this destruction may do harm. It cannot be too often pointed out that the substitution of antiseptics for cleanliness and removal of filth is most dangerous.

In regard to disinfection in the sick-room, the first principle to be remembered is that it is not possible to disinfect air whilst a person is living in it, and that, after all, the best method of disinfecting the atmosphere of an apartment is by availing ourselves of the diluting power of fresh air, *i.e.*, by free ventilation. It must be remembered also that it is far easier to destroy diseased germs when they are congregated together than when they are scattered, and it is therefore essential that the person, and especially the discharges of one suffering from contagious disease, be disinfected at once. The germicide should be placed in the receptacle that is to receive the sputum, urine, or fæces of the sick person before its use, so that the discharges shall meet at once with the germicide. The disinfection of articles of furniture, mattresses, clothing, bedding, etc., may be obtained by the use of heat or germicidal agents. In regard to all large articles of furniture of such character that they can absorb germs into their interior, the only sure method is to take them apart and disinfect the material of which they are made. Thus it is practically impossible to disinfect a mattress or a sofa in its entirety.

The heat used as a disinfectant may be either moist or dry. The experiments of Dr. George M. Sternberg have shown that boiling water rapidly kills all diseased germs which are not in the condition of spores; but that in order to kill the spores of B. subtilis and probably of most other disease-poison-bacilli, boiling for longer than two hours is required. Steam at a temperature of 230° F. for two or three minutes, or 220° F., will infallibly destroy the spores of bacilli, provided it have free access to said spores. If the latter are enveloped in clothing or similar articles, they may be entirely protected.

In regard to dry heat, the results reached by Koch and Wolffhügel are in accordance with the other evidence and may be considered as demonstrated.

1. A temperature of 100° C. (212° F.) dry heat, maintained for one hour and a half, will destroy bacteria which do not contain spores.

2. Spores of mould-fungi require for their destruction in hot air a temperature of from 110° to 115° C. (230° to 239° F.), maintained for one hour and a half.

3. Bacillus spores require for their destruction in hot air a temperature of 284° F., maintained for three hours.

4. In dry air the heat penetrates so slowly that small bundles of clothing and similar packages are not disinfected after an exposure of from three to four hours to a temperature of 284° F.

5. Exposure to a temperature of 284° F. in dry air for a period of three hours injures most objects requiring disinfection.

In any case where there is reason to believe that milk or water may contain germs of disease, such milk or water should be boiled for more than two hours before use, and may then be used with impunity. If there be any deposit in the liquid, it should be filtered before use.

There are in the market numerous proprietary disinfectants for which extravagant claims are made; but it may be laid down as an almost invariable practical rule that no *proprietary disinfectant should be employed.* Most of them are unreliable and of varying composition; the mysterious powers which are claimed for them are mythical; almost all of them are very weak in power in proportion to their cost. The following disinfecting solutions are recommended by the committee of the American Public Health Association:

STANDARD SOLUTION, NO. 1.

Dissolve chlorinated lime of the best quality in soft water, in the proportion of four ounces to the gallon.

STANDARD SOLUTION, NO. 2.

Dissolve corrosive sublimate and permanganate of potassium* in soft water, in the proportion of two drachms of each salt to the gallon.

STANDARD SOLUTION, NO. 3.

To one part of Labarraque's solution (liquor sodæ chlorinatæ) add five parts of soft water.

STANDARD SOLUTION, NO. 4.

Dissolve corrosive sublimate in water, in the

* Although the permanganate has very distinct germicidal power, it is so rapidly decomposed by organic matter that its chief use in this solution is to impart color, and so lessen the liability to mistake in their use. The objection to it is that it probably renders the solution useless by decomposing the corrosive sublimate. It ought to be substituted by carbolic acid. This applies also to solution No. 4.

proportion of four ounces to the gallon, and add one drachm of permanganate of potassium to each gallon to give color to the solution.

The committee also give a formula for a disinfectant powder, but as they have constructed said formula with a most refreshing disregard of the simplest laws of chemical incompatibility, we do not think it worth while to give it here. We also venture the very emphatic opinion that when it is not necessary to be very saving of pennies, and especially for the disinfection of alvine and other discharges from the sick, a *saturated solution of chlorinated lime should be substituted for Standard Solution, No.* 1.

From one-half to one pint of solution No. 1 should be used to disinfect sputum, or the urinary and fæcal discharges in all cases of contagious disease.

Solution No. 3 may be used for the same purposes as solution No. 1. It is more elegant, but also more expensive. In infectious diseases the whole person may be washed with solution No. 3, diluted with three times its bulk in water. Where the hands or limited surfaces of the body are to be disinfected, the solution itself may be used. After death from contagious disease, the whole body should be freely washed with solution No. 1 or 3, and be wrapped in a sheet saturated with the same.

Articles of clothing to be disinfected should be allowed to stand for two hours in solution No. 4,* wrung out, sent to the wash, and, if practicable, during the washing they should be boiled for one hour. Clothing may also be disinfected by immersion for three hours in a solution made by diluting solution No. 1 with nine parts of water.

After an infectious disease an apartment should be thoroughly disinfected. This is best done by taking off the paper, washing the walls thoroughly with a solution of corrosive sublimate of a strength of one part in a thousand of water (one pint of solution No. 4 to four gallons of water), especial care being taken to thoroughly cleanse around the surbases, window-frames, and all similar corners and cracks. The water used should be allowed to dry on the walls, but twenty-four hours afterwards the whole apartment should be rewashed with simple soap and warm water. It is much better to trust to persistent free ventilation for dispersion of germs which may be in the atmosphere of the sick-room than to attempt to kill these germs by disinfectants.

* With permanganate omitted.

Many sanitarians insist upon fumigation with sulphurous acid gas, but this, as ordinarily practised, is of no value whatever.

For the disinfection of cesspools, etc., which are believed to have been poisoned by the germs of cholera or other disease, one pound of corrosive sublimate should be employed for every five hundred pounds of estimated fæcal matter, or one pound of chlorinated lime for every thirty pounds. Of the two substances the chlorinated lime is much the preferable, as being more certain as a germicide, less antiseptic, and indeed finally contributing, by virtue of the lime it contains, to the rotting of the filth. It must be remembered that in masses of filth the corrosive sublimate is rapidly decomposed into a comparatively inert compound by the ammonia present. Further, the quantity of disinfectant used should be greater, rather than less, than the theoretic quantity above given, so as to allow for the possibility of decomposition of a part of the disinfectant.

The conclusion of all our knowledge seems to be that *the chlorinated lime, freely used, is the best germicidal disinfectant that we have for use not in immediate contact with the living human body.*

INOCULATION FOR CHOLERA.

TELEGRAPHIC despatches to the daily press announced the most brilliant results from the inoculation experiments of Dr. Ferran, of Valencia, Spain. It is stated that over four thousand seven hundred persons have been inoculated with cholera microbes in the province of Valencia as a preventive of the disease. While the system is said to be entirely successful, we cannot see on what grounds that statement is based, as it is far too early in the season to judge of the severity of an epidemic, and no proof can yet be offered as to the immunity of the inoculated individuals from cholera. Before we can indulge our enthusiasm we must demand many further details.

PHYSIOLOGICAL ACTION OF COCAINE.

A NUMBER of valuable papers, which considerably add to our knowledge of the physiological action of cocaine, have been published since the appearance of our analysis of this subject, published in the GAZETTE for April last. Laborde, who has already published the results of studies made

as to the physiological action of cocaine, has continued his investigations and obtained some very valuable and interesting conclusions. The experiments were made with the neutral sulphate of cocaine in a one per cent. solution. He has found that injection of one centigramme of the salt under the skin of the back of the guinea-pig produces the most exaggerated movements in the animal, which, strangely enough, are accompanied by anæsthesia, most emphasized in the posterior extremities. If, after a few minutes, the dose is repeated, the movements become wild and violent, as already described by Von Anrep, while the anæsthesia is present over the entire skin, even of the mucous membrane of the nose, although apparently the conjunctiva retains its sensibility, and the pupils are dilated; convulsions soon appear, both tonic and clonic, contractions of the anterior extremities and of the muscles of the eye, evacuations of greenish fæcal matter, frequent urination, passing into a condition of tonic opisthotonos. After lasting for a variable time this condition may disappear, to again recur, until finally the animal appears entirely paralyzed, although again to be convulsed, and finally to completely recover, although the insensibility of the skin may last for forty-eight hours after the injection. In the guinea-pig the same appearances are observed after the administration of cocaine, but in the dog the excito-motor symptoms appear less intensified than the paralysis of sensibility, although here also their intelligence remains unchanged, and all the mucous membranes, with the exception of the conjunctiva, are anæsthetic.

After toxic, but not fatal, doses the circulation and respiration are very irregularly affected; when a poisonous dose is given at first the respiration is slowed, and then accelerated, finally becoming irregular, frequent, and intermittent, and in the last stage of the poisoning the respiration is again greatly accelerated and deep, and the animal dies in convulsions from asphyxia, while the heart may still beat regularly, though feebly, for one or two minutes longer. During the action of cocaine the blood-pressure may be considerably increased, while the heart-movements are slowed from increased irritability of the pneumogastric. During the convulsions the temperature rises, but when asphyxia appears it rapidly falls; the salivary secretion is increased, and the urinary secretion diminished. Laborde places the fatal dose of cocaine at 11 milligrammes per kilo. of body weight.

The seemingly paradoxical statement that the same drug can produce simultaneously an increase of functional activity of the motor and a paralysis of the sensitive nerves actually appears less strange when one remembers that in nearly all pathological conditions abnormal increase of functional activity or paralysis are phenomena which are frequently closely allied, and which may easily pass from one condition to another; thus, a condition of hyperæsthesia frequently passes into anæsthesia, and contracture is often a preliminary stage of paralysis.

Cocaine produces its motor effects from its direct action on the central and peripheral excito-motor elements of the system. That the medulla and spinal cord are included in this action is proven by the character of the convulsions, while the influence of cocaine on the peripheral nerves has been shown by Laborde in the case of the sciatic and vagus nerves. Further than this, the remarkable and apparently voluntary character of the movements prove that the psycho-motor centre is also implicated in the poisoning. As regards the paralysis of sensation produced by cocaine after subcutaneous or internal administration, Laborde attributes the anæsthesia to the dulling of the perceptive faculties of the cerebrum, since centripetal conduction in the sensitive nerves is not interfered with (though Laborde differs as to this point with most other observers), and all reflexes are perfectly preserved, even in the most profound stage of cocaine anæsthesia, although such reflexes, when of a violent character, are entirely free from all painful sensations. A different state of affairs, however, occurs when the cocaine is applied locally; here the depressing action on the nerves and muscular elements produced by imbibition of the poison are much more marked, and although the sympathetic nerve is included in this paralysis, all attempts have yet failed to decide the question as to whether the muscular and vascular systems are also affected.

Laborde further draws attention to the interesting contrast in the action of cocaine and curare, and believes that an actual antagonism will be found between these two poisons. Cocaine has as yet, as far as we know, been used solely for its anæsthetic action, but these results of Laborde would seem to warrant its employment for the directly opposite purpose of availing ourselves of its excito-motor action. It would seem that the physiological action of cocaine, as determined by Laborde,

would indicate its employment in all cases of chronic weakness of the nervous system, especially in prolonged convalescence, in atrophies, and in nearly all cases of functional paralysis.

As is well known, when cocaine is injected subcutaneously the temperature of the body falls; as to whether this reduction of temperature is due to a decrease in the heat-dissipation or to an increase in the heat-production has recently been experimentally determined by Richet (*Centralblatt f. klin. Med.*, April 11, 1885). He found that not only the heat-dissipation, so far from being diminished, was actually increased, but that the heat-production and chemical changes occurring in the tissues were much more active than in normal conditions; as a consequence, therefore, animals under the influence of cocaine will lose weight. For we not only have increased oxidation processes in the body, but we also have increased removal of the heat, the principal result of those processes.

Recent investigation has made it probable that the dermal sensations of heat, cold, pressure, and pain are all conducted to the cerebrum by special nerves. This being the case, it would not seem improbable that we might in some way abolish certain of these sensations from a given locality, while leaving the others intact, and in point of fact Mr. Donaldson (*Maryland Med. Journal*, April 1, 1885) has found that the sensations of pressure and pain could be abolished from the conjunctiva by means of the muriate of cocaine, while those of temperature remain. He has found that when the eye was completely insensitive to pain the pressure of a small metal point cooled or heated in water (the temperature being 10° Centigrade for the cold and 40° for the warm), and rested on the conjunctiva, the hot and cold metal could in all cases be readily distinguished. Thus far attempts to get the same result from the skin have been made in vain, and the results obtained by Mr. Donaldson in the case of the conjunctiva are directly contradicted for the skin in the experience of Dr. Henry B. Millard (*New York Med. Journ.*, May 2, 1885). He found that when the skin was painted thickly with several coats of the four per cent. solution of Merck's cocaine, coldness and numbness of the skin were produced, and that the application of the Paquelin thermo-cautery apparatus was entirely painless, although, of course, followed by burning, and he reports several cases confirmatory of this statement.

M. Arloing has also made an extensive series of researches on the physiological action of cocaine, which lead him to the following conclusions (*British Medical Journal*, April 25, 1885):

Hydrochlorate of cocaine is a purely local anæsthetic, and contact of the terminal nerve-plates with cocaine is the principal cause of anæsthesia. Cocaine provokes constriction of the capillary blood-vessels; but M. Arloing does not think the corneal insensibility produced by cocaine ought to be attributed to regional anæmia, inasmuch as anæsthesia can be produced before and after section of the cervical branch of the sympathetic nerve. The anæsthetic effects of salts of cocaine are very evident on epithelial mucous membranes, on one especially in which the nerve is intra-epithelial, that of the cornea. Thus it may be argued that anæsthesia from cocaine depends on contact, and this is not impeded by the local circulation. In the nerves, where the nerve-elements are protected by the peripheral connective tissue and the lamellar sheath, anæsthesia is more slowly produced. Interstitial injections of cocaine anæsthetize small nerves, as has been proved in the enucleation of the eyeball. A solution of cocaine deposited on the surface of the eyeball of the guinea-pig slowly penetrates through the epithelium; the nerve-terminations are impregnated. It traverses the cornea, circulates among the lymph-canals and aqueous humor, bathes the iris, and finally passes into the circulatory system, and kills the animal. M. Arloing concludes that cocaine-salts temporarily modify the physical properties of protoplasm, the elements of nerve-terminations, and the fibrillar elements. On the other hand, Dr. Brown-Séquard believes that the anæsthetic effect of cocaine is due to inhibitory phenomena. In a communication to the Biological Society, he stated that the fact that wounds become anæsthetized when the animal's larynx is irritated by carbonic acid, chloroform, or galvanization, suggested to him that the action of cocaine is inhibitory. Dr. Brown-Séquard observed that, by slightly stimulating his laryngeal mucous membrane, he relieved a feeling of intense fatigue, and also removed rheumatic pains. He injected hydrochlorate of cocaine along the superior laryngeal nerve of an animal. All the wounds inflicted were anæsthetized, and the sciatic nerve was stretched without producing the slightest pain; an analgesic zone existed around each wound. All the wounds inflicted after the application of cocaine were in a state of hyperalgesia.

Dr. Brown-Séquard therefore refuses to admit the anæsthetic effect of cocaine, and further asserts that, if a large dose be injected, the poisonous properties of cocaine prevent the anæsthetic phenomena.

SUBCUTANEOUS BLOOD-INJECTIONS.

THE theory of artificial blood-renovation, refuted time and again, and apparently banished forever from the domain of practical therapeutics, shows a strange tenacity on the minds of practitioners. The very persistency with which the doctrine of blood-transfusion appears in certain periods before the professional forum is in itself sufficient evidence of an underlying practical basis well deserving of a critical inquiry.

We have no clinical data to judge of the therapeutic worth of the animal blood-draught, which, as mentioned in another column of this issue, enjoys a positive popularity, especially in Paris, though we are inclined to credit it with salutary effects if well borne by the stomach and systematically presented to proper indications. The direct transfusion of animal blood, however, by both the subcutaneous and intravenous methods, can no longer be regarded as feasible or even permissible, but is to be wholly interdicted for both scientific and practical reasons. Fever, hæmoglobinuria, urticaria, and intense local irritation, the usual attendants of such an injection, are sufficiently grave complications to deter even the boldest practitioner from this procedure.

On the other hand, the unquestioned capability of introducing a certain and even large quantity of blood from the cellular tissue into the circulation, and of thus effecting a permanent increase of the hæmoglobular components and red blood-corpuscles, leads to the consideration of employing human blood. The question what effect the repeated introduction of small quantities of human blood would have upon the composition and functional potency of depraved human blood has hitherto been unventilated. The subcutaneous injection of human blood forms the simplest and best controllable method of clinically testing the value of this blood-injection. Ziemssen is favorably impressed with this procedure, as can be seen from his paper appearing in a recent number of the *Deutsches Archiv für Klinische Medizin*. The unfavorable symptoms previously intimated as following the injection of animal blood do not appear when human defibrinated blood is used, while the salutary effect of new oxygen-carrying elements makes itself plainly manifest. An injection of 1½ ounces is sufficient to produce appreciable results, which, of course, grow more conspicuous when the application has been repeated several times at an interval of a few days. Reddening of the skin and mucous membranes, heightened physical and intellectual capacity, increased appetite, improved sleep, are the most salient effects of the blood-injections. Besides, the spectroscopic examination of the hæmoglobular elements (apparatus of Steinheil) and the direct counting of the blood-cells (Zeiss's instrument) will furnish the positive testimony of figures to the stated improvement. It is best to divide the mentioned quantity of 1½ ounces to two points of application, one on each thigh. The hæmoglobine of the blood is then noted to increase rapidly, to reach a minimum within twenty-four hours and to fall again, without, however, sinking to the original level, thus establishing a permanent and gradually increasing gain. Actual counts have repeatedly registered an increase amounting to double or more of the original hæmoglobine.

Ziemssen has made in several patients four to five injections within one or two weeks, though, in the majority of cases, only one or two.

The following clinical cases, possibly the first ever recorded, deserve special attention:

1. Malignant scurvy in a working-man, æt. 40, existing for six weeks. Extreme anæmia, fainting-spells, extravasations into skin and muscles. Clinical treatment with selected diet, citric acid, etc., without effect; hæmoglobine-determination, 0.34873 (normally about 1.44000).

July 28.—Injection of 50 cc. (about 1¾ ounces) of defibrinated blood (taken from a healthy person) into the cellular tissue of both thighs. No reaction; normal temperature.

July 29.—Normal temperature; no local irritation; urine normal; hæmoglobine, 0.47887 (an increase of 0.13014).

August 1.—Morning: hæmoglobine, 0.45371 (absolute increase of 0.10429).

August 1.—Noon: second injection of 50 cc. into thighs.

August 2.—Hæmoglobine, 0.49758 (absolute increase of 0.14885); no fever; no local irritation; normal urine; skin and mucous membranes faintly reddened.

Steady improvement following these two injections rendered further applications unnecessary.

2. Profound anæmia in a girl, æt. 8; frequent fainting-spells of long duration; hæmoglobine, 0.23211; red blood-corpuscles exceedingly pale, many quite colorless. Same injection as above on the 16th of July, 1884.

July 17.—Hæmoglobine, 0.44130 (increase of 0.20919); slight sensitiveness to pressure on point of application; no fever; no hæmoglobinuria; faint rose-hue of skin and mucous membranes; apathy reduced; appetite returning. Patient rapidly improving and discharged.

The absence of all untoward after-effects, both local and constitutional, is equally gratifying and surprising.

As to the *modus operandi*, we present here briefly the method as practised by Ziemssen.

The venesection, retention of the normal temperature of the blood in a water-bath, and defibrination are effected as ordinarily. The syringe has to be especially prepared for this purpose, and has to hold the exact quantity of 25 cc. The following cautions have to be observed:

1. Disinfection of the operator's hands and the skin of both giver and recipient of the blood on respective parts of the skin; likewise disinfection of all material and instruments.

2. Centrifugal massage of the limbs to cause the blood to flow towards the heart; this has to be done immediately after the injection, and is to be continued for five minutes.

The principal indications for the procedure are grave chlorosis and anæmia following puerperal hemorrhages and accidents, leucæmia and poisoning by gases.

Reports on Therapeutic Progress.

TREATMENT OF ACUTE PERITONITIS BY ABDOMINAL SECTION.

The extreme fatality of acute diffused peritonitis, especially of that form due to perforation, and the acknowledged futility of the modes of treatment that are at present employed, give some support to the proposal that acute peritoneal inflammations should be treated by the same methods that are successfully applied to other acute inflammations, namely, by free incision and drainage. This common and general surgical procedure has been already applied for the relief of inflammations of certain of the serous membranes. It was at first adopted in connection with the smaller serous cavities, as those of the joints. It has been gradually and with increasing freedom applied in the treatment of inflammatory conditions involving the pleura. It has finally become a recognized means of treatment in certain forms of localized and chronic peritonitis, especially when purulent collections have formed.

Mr. Treves, in a paper read before the Royal Medical and Chirurgical Society at the meeting held March 10, 1885 (*British Medical Journal*, March 14, 1885), urged the adoption of this principle in treatment in connection with acute and diffused forms of peritonitis. A female, aged 21, was admitted into the London Hospital on January 21, suffering from chronic pelvic peritonitis following severe gonorrhœa. On February 25, three months after the commencement of the chronic peritonitis, she suddenly developed the symptoms of acute diffused peritoneal inflammation. The sequel showed that a large chronic purulent collection, containing very offensive matter, had formed near the left pelvic brim. The walls of the abscess were formed partly by the pelvic peritoneum and partly by many coils of small intestine that had become matted together. The acute symptoms were due to the bursting of this abscess, and the extravasation of its contents into the general peritoneal cavity. On February 26, the abdomen was opened under antiseptic precautions, the patient being at the time apparently in a very critical condition. The general surface of the peritoneum showed the ordinary appearances of acute peritonitis. The intestines, where in contact, were lightly glued together. A quantity of semi-opaque fluid, mixed with flakes of lymph and pus, escaped. The whole peritoneal cavity was washed out with many quarts of water, and a drain introduced. The patient made a good recovery, and was allowed in the garden on the fortieth day. Mr. Treves alluded to several cases in which operations involving laparotomy have been performed with success during the progress of acute peritonitis, the cases having been in most instances the subjects of error in diagnosis. Allusion was also made to the recent experiments of Dr. Parkes, of Chicago, as to the treatment of penetrating gunshot wounds of the abdomen with perforation. Mr. Treves ventured to suggest the use of abdominal section in the treatment of certain cases of acute general peritonitis, such as that following injury, gunshot wound, the bursting of an abscess, and specified forms of perforation.

Mr. Howard Marsh read the notes of a case which had many points in common with that of Mr. Treves. The patient was a medical student, of the age of 19, who was attacked

with symptoms of sudden and acute peritonitis, and admitted under the care of Dr. Andrew and Mr. Howard Marsh into St. Bartholomew's Hospital. There was no hernia, and nothing abnormal could be felt by the rectum; a little to the left of the umbilicus the skin was slightly raised and flushed, and there was deep fluctuation, with dulness on percussion. A diagnosis of circumscribed peritonitis was arrived at, and operation determined upon; the state of the patient was very critical, the vomiting violent. An incision about two inches in length was made along the linea semilunaris, and about two pints of fœtid pus evacuated. The intestine was found to be much distended, but no cause of obstruction was discovered. The abdomen was thoroughly washed out with a solution of carbolic acid, of the strength of 1 part in 60, a drainage-tube introduced, and the upper and lower ends of the wound closed by deep sutures; carbolic dressings were applied as dressings for the wound. For two hours the patient was cold and collapsed, and he vomited much, probably from the ether; then he began to revive, and the vomited matter had no fæcal odor, but was merely the contents of his stomach. Morphine was given, and he was fed by the bowel for several days; the sickness ceased entirely in twelve hours, and it became possible to take food by the mouth. The temperature was slightly raised, but did not reach 101; the discharge from the incision was profuse, and at first very offensive, but after a week it lost its odor, and recovery was steady, with one trifling intermission, when the discharge increased. The peritoneum, in the later stages, was washed out with a solution of iodine, 1 in 1000; and after about two months recovery was complete. The cause of the peritonitis was not clear; Dr. Andrew agreed with Mr. Marsh in thinking it might be due to the bursting of an abscess in the mesentery, arising from tubercular glands; that it extended very widely was plain, from the large area from which pus could be withdrawn by a catheter on the first incision. The condition of the patient when operated upon was very critical, and it did not seem probable to those who saw him that, if immediate relief had not been found, he could have lived many hours. His condition forbade any further proceeding for ascertaining the cause of the suppuration; to evacuate the pus was all that could be attempted. The relief was rapid; in six hours the pulse was fairly good, though the other symptoms were so severe that only his youth enabled him to pull through. The operation was certainly to be approved for localized peritonitis, but in general peritonitis any large success was doubtful, for then the abscess-cavity was very extensive, any thorough washing out of the pus must lead to danger of rupture of the intestine, and, even after temporary recovery, adhesions were likely to have formed which would be a cause of future danger. In this case there was impaired peristaltic action, which might possibly be from adhesions.

Mr. Bryant thanked both Mr. Treves and Mr. Marsh for their contributions to the knowledge of the subject, which was, taken in all its bearings, a large and important one. The operation recommended was, after all, only the application of well-known surgical principles to abdominal suppuration. Operations for the relief of perityphlitic abscesses were sometimes regarded as extraperitoneal; but that was a mistake, as Mr. Treves had lately clearly demonstrated in his excellent lectures at the College of Surgeons. For himself, he had long felt that such abdominal operations ought to be carried out; their results, it must be allowed, would depend very largely upon what was the cause of the peritonitis: it might be due to a wound, a perforating ulcer, or a burst abscess. In cases of perforating ulcer of the cæcum, he was decidedly of opinion that operation might do good. Mr. T. Smith had put on record a very valuable instance of its success in such a case in *St. Bartholomew's Hospital Reports*, vol. ix., 1873.

Mr. Knowsley Thornton wished also to express his thanks to the authors of the papers. At the present day, it would be difficult to find any surgeon bold enough to blame such surgical operations as those of Mr. Treves and Mr. Howard Marsh. He had himself been sorry that the phrase used as describing the disease was not acute suppurative peritonitis, for that, in his experience, was a much easier state to deal with than simple acute peritonitis. This latter state occurred sometimes apparently idiopathically where there were tumors in the abdomen; there might be no escape from the tumor, and yet such a state might come on, apparently from chill. In such conditions, where there was an ovarian tumor, and simple acute peritonitis supervened, he had twice opened the abdomen, and found, on both occasions, the peritoneum intensely congested, but quite dry. The first case died soon after the operation, with suppression of urine and collapse; and subsequent reflection led him to the con-

clusion that it would have been better to have waited longer before operating. In the second case, there was a large ovarian tumor, the peritonitis was very acute, and the state extremely hazardous. He was induced to operate by the impression that there was abdominal hemorrhage. It turned out that he was wrong; no hemorrhage was found, but the same condition of acute dry peritonitis. The woman, however, recovered, after passing through a state of extreme peril. This experience had convinced him that that was not a suitable stage for operation. Mr. Treves had, unfortunately, not stated whether, in his case, the peritonitis was dry or not. If it had been possible to incise the peritoneum, to relieve the congestion, it would have been a good thing; but that was out of the question, and the alternative was to wait till a subacute stage or a stage of effusion was reached. In perforation or gunshot wounds, he should prefer to operate at once, to try to close the opening in the bowel, to clear out the matters that had escaped into the abdomen, and to drain the cavity. Drainage was important, as it was nearly impossible to be sure that all obnoxious contents were cleaned out during the operation. In gunshot wounds, it was hardly likely that the results would be quite satisfactory, for the edges were not such as could easily be brought together, and only after somewhat perilous resection in the track of the ball could good union be expected. As to the method to be used in operation, he generally advocated Listerism, and all antiseptic precautions; still, he held strongly that, if it were impossible to be sure of making wounds antiseptic, it was better to leave antiseptics entirely alone. In these abdominal cases, it was often so impossible to be sure of attaining a completely antiseptic condition that he preferred, as a rule, to leave Listerism entirely alone, and to wash freely with boiled water at the temperature of the body, and then to dress the external wound antiseptically until it could be seen whether the subjacent parts were antiseptic.

Dr. Douglas Powell was extremely glad that his surgical brethren were beginning to treat peritonitis as they had treated pleurisy, and to recognize two classes of cases,—namely, (*a*) the suppurative, which required early surgical treatment; and (*b*) the serous or idiopathic, which were less fitted for operation. Mr. Treves's paper would tend to place effusions into the peritoneum on the same footing as effusions into the pleura, and to lead it to be recognized that in effusions of pus, surgical treatment only could be efficient. He demurred to Mr. Thornton's preference for boiled water, and should expect, in such cases, suppuration in the residue of the abdominal contents. He should himself incline to the use of a weak mercurial solution, such as Mr. Pearce Gould had successfully used in a case under his care.

Mr. Barwell gave some details of a case of suppurating perityphlitis, in which he had made an opening in the flank, and a counter-opening in the loin, by which he had evacuated twenty-four ounces of fœtid pus from within the peritoneum. The wound was for long syringed out with a weak carbolic solution, and at last closed completely. The patient died eighteen months after the operation, of phthisis; but he thought himself justified in saying that life was prolonged by the operation. He felt himself in substantial accordance with Mr. Treves as to the benefit to be obtained from such operations, but expressed his conviction that in these cases the surgeon was almost always called in too late.

Dr. Goodhart took surgery in general somewhat severely to task for its aggressive habits in attacking the physician's territory. Mr. Treves, however, he had found cautious and kind. He would have been glad to have heard rather more of non-suppurative peritonitis, and those frequent cases in which there was too little effused fluid for the surgeon to deal with. Such cases often died very suddenly, like dogs injected with sepsin. He had seen one such case benefited by surgical treatment. A colleague of his was going to perform, in a case of peritonitis, what he believed he was right in calling Littré's operation; and he was performing it by two stages. In the first stage an incision was made, and the intestine stitched to the walls of the cavity. A very little turbid fluid was let out; and no more was done, for it was found that that had sufficed to alleviate the symptoms completely. In ascites, he thought there was room for more surgical treatment. It often happened that such cases died after having been very frequently tapped,—perhaps ten or twenty times. In such cases, incision and drainage might have succeeded better. One case had been reported as "cirrhosis cured by tapping." Of course, it was not the cirrhosis, but only the ascites, that had been cured; and that had been effected by the union of the visceral and parietal layers of the peritoneum, after the evacuation of fluid and the establishment of a collateral circulation.

Mr. Meredith expressed his substantial

agreement with all that Mr. Thornton had said, especially as to disuse of antiseptics in abdominal operations; for a solution of carbolic acid of the strength of 1 in 40 had been found insufficient to arrest putrefaction, and no stronger could be used in these cases.

Dr. Douglas Powell remarked that he had advised the use of weak solutions of perchloride of mercury, and commented also on the advisability of using a hypodermic syringe before operation in order to determine the nature of the effusion.

The President asked if it would be thought desirable to call in surgeons in cases of perforation of the stomach by simple ulcer, where the symptoms of acute collapse were generally present, and the cause plain. Certainly, if the case were left to the physicians, there was very small chance of recovery. In his experience, he had only met with one such case; the symptoms of perforation of the stomach had seemed distinct, but the recovery led to some doubt being thrown on the diagnosis. The stomach, at the time of perforation, had fortunately been very empty.

Mr. Barwell expressed an opinion in favor of operation in such a case.

Mr. Treves, in reply, noticed some objections to the operation which Mr. Marsh had brought forward, namely, the large size of the abscess, the difficulty of removing the pus, and the danger from resulting adhesions. He could not admit that the first two were insuperable objections, as, indeed, Mr. Marsh's own favorable case had shown, and danger from adhesions was too distant and uncertain to have any practical influence in determining what should be done in these cases, in which there was generally a pressing question of life and death. Mr. Thornton had said that, in cases of dry peritonitis, it was unfortunately impossible to relieve the intense congestion by incision, but he ventured to think that the opening of the cavity would in itself tend to relieve the congestion. Mr. Thornton had advised waiting in such cases, but most of such cases were dying, and could not wait. He related a recent case of gunshot wound of the abdomen, in which the bowel was perforated in four or five places. The abdomen was washed out; no resection was thought necessary; the wounded edges were adjusted, and the operation was followed by complete recovery. The objection to the use of the perchloride of mercury which Dr. Douglas Powell had advocated, was that it formed an albuminate, and its antiseptic properties were thereby much diminished. As to the operation in the case of perforating ulcers of the stomach, such as the President had described, he could not bring forward any experience, but he knew that many surgeons were anxious for an opportunity to operate upon them.

Mr. Howard Marsh explained that he quite agreed with Mr. Treves in wishing to perform these abdominal operations, but that he thought it right to dwell on the difficulties of thorough drainage, and that his reference to subsequent abdominal adhesions had arisen from his recollection of a case in which he had seen death result from such adhesions.

ON DILATATION OF THE STOMACH IN CHILDREN.

Dr. Comby, of Lyons (*Lyon Méd.*, No. 49, 1884), regards gastric dilatation due to dietetic errors as an affection of greater frequency than commonly believed. Though appearing most frequently in children fed artificially, especially if early accustomed to solid food, it is occasionally found, nevertheless, in nursing children, and is then to be attributed to either excess in quantity or undue richness of the milk. The most prominent symptoms of the affection are inflation of the stomach, tympanitis, and a ringing noise (*bruits de clapotage*), as also found in adults.

Occasionally we find alongside of dyspeptic troubles nervous symptoms, such as convulsions, insomnia, and sometimes eczema and impetigo. Comby refers also to the coincidence of this affection with rachitis, though without regarding it as a rachitic symptom.

The prognosis is to be guarded, as the affection sometimes extends to puberty, and even longer. The treatment is to be of an exclusively dietetic nature. Artificial food is to be excluded, improper articles of diet to be banished, the weaning to be delayed, and strict general surveillance to be enforced. Washing out of the stomach has, in some instances, proved advantageous.

PEROXIDE OF HYDROGEN.

Recent experience in the use of peroxide of hydrogen in diseases of the middle ear led Dr. William A. Dayton to employ this drug in pulmonary consumption complicated by disease of the nose, ear, and throat, in which he has obtained considerable success in cases where other methods of treatment had failed. The difficulty of checking chronic suppurative inflammation of the middle ear in consumption is well known, and Dr. Dayton

states that he has employed a twelve per cent. solution in the ears of such cases, together with a two per cent. solution of the same given internally, with the most gratifying results. In ozæna, which is frequently associated with tubercular diathesis, sprays of this solution, of varying strength, have proved more efficacious than any other application, while again, in two cases of tubercular laryngitis, sprays of two per cent. of the oxide afforded positive relief.

As regards the internal administration of the peroxide, patients have sometimes complained that even a two per cent. dilution produced an irritation in the fauces and pharynx when swallowed, and this unpleasant effect can, according to Dr. Dayton, be obviated by administering the preparation in milk. Peroxide of hydrogen is a potent deodorizer; it is an eligible antiseptic, and an effective remedy in a large class of diseases in which mucous membrane is chiefly involved.—*New York Medical Journ.*, April 25, 1885.

ON DUODENAL ULCER.

Dr. M. Chvosteck publishes in the *Giorn. intern. delle sc. medicale*, p. 416, 1884, his personal observations of eight cases of round duodenal ulcer, and a creditable exposition of the etiology, pathology, and diagnosis of this rare affection. Of decided value we deem the differential diagnosis regarding gastric ulcer as laid down by this author. He himself found in one case this differential diagnosis confirmed by a post-mortem examination. The phenomena following the ingestion of a glass of wine furnish the criterion of distinction between the two affections. If the ulcer be situated in the stomach, the ingestion of wine will not only cause no cessation of pain, but an increase of it, while, on the other hand, if the ulcer be in the duodenum, the favorable effect of this drink is readily explained. The gastric stimulation produces reflex closure of the pylorus, and by thus stopping the passage of the gastric contents into the duodenum, affords relief. The passage of a small quantity of ingested matters from the stomach to the duodenum begins, as is well known, within ten to twenty minutes after the meal, and is periodically repeated as often as the pylorus relaxes. The more replete the stomach is, the greater the quantity of undigested food which passes into the intestine. If the undigested masses are solid, the epigastric pain will be more severe. In the case which the author reports, more relief from pain was afforded by the closure of the pylorus through the action of the wine than by the strongest anodynes.

THE TOPICAL APPLICATION OF MURIATE OF COCAINE IN A CASE OF HYDROPHOBIA.

Surgeon-Major D. F. Keegan reports the following case in the *Indian Medical Gazette* for March, 1885: On the morning of the 30th December, 1884, a man, aged 30, a shepherd by caste, applied for medical relief at the out-patient department of the Indore Charitable Hospital. His countenance denoted great mental anxiety, his eye was wild, and his manner agitated and restless. He complained of pain in the chest, his breathing at times was gasping, and there were spasms in the throat. He said he had been unable to eat or drink anything for four days, and he complained much of a burning sensation in the epigastrium. On being offered a little milk he was thrown into violent spasms. He was at once removed to a separate room, and it was then remarked that he walked on his toes: the heels were well raised from the ground, the knees were semiflexed, and the muscles of the calves were tense. He objected to being placed in a darkened room; complained of want of air, and sat in the door-way. At this time there was no discharge of saliva from the mouth. The nature of the case was so evident, that it was considered unwise to question him on the subject of his having been bitten by a dog. An enema consisting of 30 grains of hydrate of chloral and 2 drachms of bromide of potassium dissolved in one ounce of water was ordered every three hours. In the evening his condition was unaltered. He strongly objected to the enema. Morphinæ mur., gr. ½, and pilocarpine, gr. ½, were injected subcutaneously.

The next day his condition was not improved. He had, however, slept for two hours during the night. Hydrate of chloral, gr. xl, along with bromide of potassium, ℥i, dissolved in one drachm of treacle, were ordered every three hours. Pilocarpine, gr. ½, and morphinæ mur., gr. ½, were again injected hypodermically.

In the afternoon of the same day a five per cent. solution of muriate of cocaine was applied freely over the back of the fauces and upper portion of larynx, and five minutes after its application he was able to drink twelve ounces of milk and eight ounces of water. He took the milk and the water sepa-

rately in small draughts at a time. Between each draught he cleared his throat, as he experienced some spasm in swallowing.

During the following night he slept some hours, and the next morning stated that the milk and water had much diminished the burning sensation in the epigastrium.

In the evening a ten per cent. solution of muriate of cocaine was very freely applied to the back of the throat, and five minutes after its application milk and water were offered to him. He swallowed in about a quarter of an hour, with very little difficulty, thirty ounces of milk and two tumblerfuls of water. He said he could go on drinking the milk the whole day. Whilst talking a deadly hue came over his countenance; he lost consciousness, the heart's action failed, and he suddenly expired.

Remarks.—A post-mortem examination was not obtainable in this case. The sudden cardiac failure, however, pointed to damage of the nucleus of the pneumogastric. Excessive sensibility of the cutaneous nerves and some of the nerves of special sense was not a prominent feature in this case, for the patient strongly objected to being kept in a darkened room. He courted the light and sunshine and fresh air. Dr. Keegan states that he has attended five patients who have died from hydrophobia, and he is therefore in a position to give an opinion regarding the beneficial effect of the topical application of cocaine in the treatment of this distressing and deadly disease. As hydrophobia progresses towards a fatal termination, the special symptoms of the disease may diminish or even disappear altogether; for Latham relates the case of a man laboring under this disease who sat up quietly in bed and drank a pint of porter half an hour before he died. If the topical application of cocaine should render the act of swallowing during the first stages of hydrophobia a comparatively easy operation, then, indeed, this dire malady will have been shorn of half its terrors.

NITRO-GLYCERIN IN CONTRACTED KIDNEY.

The salutary effects of lowered arterial pressure as accomplished by nitro-glycerin in the affection known as the contracted kidney are very clearly demonstrated by the history of a number of cases observed by PROF. ROSSBACH, and reported by the *Berl. Klin. Wochenschrift*, No. 3, 1885.

As the quantity of the urine and its albuminous components was noted to be decreased, the uræmic asthma to disappear rapidly, and the general health to decidedly improve, we are justified in drawing the following inferences:

1. The augmented excretion of urine in the contracted kidney depends upon other conditions than high blood-pressure; possibly upon a greater permeability of the blood through the capillaries which still remain intact. Thoma long ago proved that an analogous condition existed in chronic interstitial nephritis.

2. The high arterial pressure is probably one of the causative agencies of the grave symptoms of this affection, such as retinitis, asthma, etc.

3. Nitro-glycerin is an excellent remedy in contracted kidney, well capable of removing threatening symptoms and of prolonging life.

Comparative trials of the therapeutic value of nitrite of amyl, nitrite of sodium, and nitro-glycerin, all of which are arterial depressants, convinced Rossbach that nitro-glycerin was the only drug of those mentioned eligible in this affection. The toxic energy and rapid elimination was the principal objection to the two other remedies.

THE TREATMENT OF EMPYEMA WITH ESPECIAL REFERENCE TO THE DISEASE IN CHILDHOOD.

Whatever may be the history of empyema in adult life, DR. C. N. GWYNNE (*Medical Press*, April 1, 1885) believes that in children a purulent effusion into the pleura commences as such, and in only a very small number of cases, indeed, does it follow a serous or serofibrinous effusion. Unless the cause is one of direct injury, empyema in childhood will be found in nearly all cases to occur in patients whose health has sunk far below par, and in most of them a history of some antecedent affection, whether measles, scarlatina, or pneumonia, will be found, or the children will be of a strumous condition, and we may expect to find chronic abscesses, glandular enlargements, joint-affections, etc. In such cases Dr. Gwynne believes that nothing is to be gained by operating at an early period, since the thickened fibrinous abscess-sac forms for a considerable time a secure protection both against perforation and septic absorption. Sometimes, no doubt, an empyema forms rapidly, and producing urgent symptoms from pressure, demands speedy evacuation. In the majority of cases the process is more

slow, and there is often a tendency for the pus to be confined in separate cysts. In such cases a little delay is of no consequence, and tends, as the pus increases in amount, to the substitution of a unilocular or of a multilocular abscess-cyst, which afterwards, when the process of the drainage is to be carried out, and possibly irrigation demanded, in no small degree facilitates matters, and tends to the surer and more speedy cure. As an illustration of the truth of this principle, Dr. Gwynne reports one case in which a large pleuritic abscess existed for weeks without producing much inconvenience beyond its pressure-effects, and when operated upon the case progressed to recovery without a drawback; but, on the other hand, to neglect operative treatment in empyema of even limited extent, where no urgent symptoms are present, is treatment of the very worst description, and disastrous at the time or afterwards to the patient, the absorption of the pus paving the way for albuminoid disease, phthisis, or pyæmia.

After deciding to open the pleural cavity, the next point is to settle upon the method to employ. In three out of the four cases which Dr. Gwynne reports a trocar and canula were used, and in the fourth he made a free incision with the knife. The former method, according to the author, is much the best, even though we will find that the latter is that generally recommended. For the use of the trocar and canula it may be claimed that it is easier of execution, less painful, and therefore less likely to increase the shock, much more cleanly, while an easier flow of pus follows, and the flow may be more rapidly brought under control if the patient shows symptoms of collapse. The drainage-tube also is inserted with greater ease. As regards the locality in which the thorax should be opened, Dr. Gwynne recommends as best for drainage the seventh interspace on the right, and the eighth interspace on the left, side, about an inch or so behind the axillary line. To go too far behind is to get the tube lain upon, and too far in front prevents effectual drainage,—the most important point by far in the treatment of empyema. In fact, the position of the opening relatively to the line of the axilla is a far more important consideration than the choice of the interspace, since when the patient is lying down in bed the level of the ninth interspace is but little below that of the fifth.

When the amount of pus is large, it should be allowed to drain away gradually; for, although this entails more trouble and frequent dressing, the reasons in favor of doing so are so strong, especially in the chronic cases, that this rule should not be neglected. Subsequent treatment ought to be carried out under Lister's method of treatment, and the tube, as the case progresses, should be greatly shortened, until, as the discharge decreases to a smaller amount, it does not measure more than an inch or so inside the chest. To keep it in too long is to increase irritation, and tends to make a sinus with a chronic discharge. If, by accident, the pus becomes septic, the case at once assumes a grave import in proportion as the abscess-sac is a large one, and then, unfortunately, children bear irrigation of the pleural cavity very badly, and the injection of antiseptic fluids is followed each time by much exhaustion. The best safeguard against this complication is the endeavor to keep the pus aseptic by fully carrying out the Listerian method.

INJECTION OF BLOOD INTO THE PLEURAL SAC.

Dr. Silva states the result of his experiments in the transfusion of blood into the pleura of rabbits as follows in *Il Morgagni:*

1. The pleura absorbs defibrinated blood as readily as the healthy peritoneum.

2. The effect of this injection appears after four or five hours, and consists in an increase of the hæmoglobine in the red blood-corpuscles. This increase disappears again on the fourth day.

3. The maximum of the increase of the hæmoglobine is reached during the first twenty-four hours.

4. The transfusion of blood into the pleura increases the excretion of urea.

Prof. Bozzolo performed this operation with satisfactory results in a case of pernicious anæmia combined with malarial cachexy and albuminuria.

THE TREATMENT OF SECONDARY SYPHILIS.

In the treatment of secondary syphilis Mr. Armand Bernard (*Medical Press*, April 1, 1885) recommends the early use of mercury in small doses, and the preparation which he has found to be most successful is the hydrargyrum cum cretâ, given in 2-grain doses night and morning, combined with a couple of grains of Dover's powders, and he even recommends this treatment prior to the ap-

pearance of constitutional symptoms, as in many cases the induration accompanying the initial lesion is only influenced by the early administration of mercury. He has never found any evil results to follow this practice. He particularly lays stress on the necessity of attending to the mouth and teeth in the matter of cleanliness, as salivation is sometimes due to inattention to this precaution. The use of mercurial fumigation by means of the vapor-bath for papular eruptions and lesions of the mouth is always desirable, the preparation recommended for this purpose being calomel in half-drachm quantities, the proportion of water not to exceed one ounce. Mr. Bernard states that he has found that more benefit is derived from a gentle use of steam in merely dampening the skin than in the sweating, which has the effect of weakening the patient and washing off the calomel from the surface of the body. A patient should not be allowed to remain under the influence of the vapor-bath longer than ten or twelve minutes. In some cases, such as obstinate scaly eruptions, iodide of potassium, in doses of from three to five grains, can be administered at the same time with benefit. Another useful mode of treatment for hospital patients is found in mercurial inunctions. He has found that this most valuable agent is much objected to by private patients. They objected to its uncleanliness and to the time and trouble which the rubbing entails. On the other hand, in infantile syphilis he looks upon it as the remedy *par excellence* if applied on the flannel bandage around the abdomen. A five per cent. preparation of the oleate of mercury will be generally found to answer all purposes.

He draws attention to the necessity of constantly looking after the delicate skin of the infant to prevent excoriations. He has not found the same objection on the part of the mother to the use of mercurial applications, as in adults, for two reasons,—in that it entails little trouble on her part, and in the fact that a mother is only too anxious to follow up any treatment, however objectionable, for the sake of her offspring. He has not derived the same good results from the internal administration of mercury to infants as from the inunctions, the ejection of food natural to them being a great drawback to internal treatment. For local applications to lesions of the mouth a medicated spray is in constant use at the hospital, a diluted solution of tincture of iodine (2 drachms to 8 ounces of water) being highly prized. A mixture of finely-powdered iodoform and starch applied to painful ulcerations of the tonsils or soft palate by means of the souffle occasionally is very soothing. Smoking and chewing tobacco must be strictly interdicted. Mr. Bernard has not found much benefit from the use of erythroxylon coca in syphilitic affections. In conclusion he refers to the great advantages derived by patients who have visited Aix-la-Chapelle in order to undergo a course of treatment there, especially in the form of mercurial inunctions.

TREATMENT OF CROUPOUS AND DIPHTHERITIC CONJUNCTIVITIS.

KROLL, on the recommendation of Graefe, treated a case of diphtheritic conjunctivitis with washes of two per cent. solution of carbolic acid after the conjunctiva was previously cleaned by gentle friction (*Berl. Klin. Wochenschrift*, 23, 1884). The instillation was effected by a piece of linen, the lids being slightly drawn apart. The morbid process, however, progressed until ulceration and necrosis of the cornea rendered the enucleation of the bulb necessary. Kroll ascribes this deplorable result entirely to the carbolic acid, which he had long suspected as a ready source of mischief. The macerated aspect of the cornea and the altered color of the conjunctiva of patients thus treated had previously created the apprehension now found well founded. Kroll thinks that these washes, especially if repeated every one or two hours, have a caustic action which, on account of the closed lids, must naturally be intense. A far safer and even more efficient remedy is a four per cent. solution of boric acid, which has no irritating properties, and even when freely used shows no caustic tendencies.

A case of diphtheritic conjunctivitis of the gravest type yielded to aqua calcis. Kroll instituted comparative experiments with aqua calcis and carbolic solutions in this case, both eyes being affected and treated differently. The superiority of the aqua calcis was soon established. It was also successfully exhibited in cases of acute and blennorrhoic conjunctivitis. It is contraindicated in epithelial exfoliation and corneal ulceration, where an incrustation of the cornea with chalk would result.

RESORCINE IN WHOOPING-COUGH.

This remedy has been extensively employed during the last year in the treatment of

whooping-cough, with more or less success. Dr. Moncorvo, of Rio de Janeiro, was among the first to bring the treatment into general notice. He strongly advocates the topical employment of resorcine in the strength of one per cent., applied by a fine pencil-brush to the larynx. He gives fourteen instructive cases, of various degrees of severity and duration, in which this remedy was found highly serviceable. He gives the following conclusions:

1. That whooping-cough—whose nature, up to a very recent period, has been subjected to the most diverse interpretations, in relation to its genesis—may to-day, according to the latest microscopic researches, be included in the class of parasitic diseases.

2. That the disease appears attributable to the presence of micrococci, which multiply prodigiously in the hyperglottic vicinity of the larynx, infiltrating its epithelial cells, which appear to be the predilective seat of their development.

3. That resorcine, applied to the laryngeal mucous membrane, caused, in all the cases in which it was employed, rapid decrease of the number of paroxysms, moderation of their intensity, and finally recovery in a short period of time, without the aid of any other medication.

Dr. Moncorvo says that resorcine, owing to its less caustic action, and the absence of disagreeable taste and odor, is far preferable to carbolic acid. He has administered it internally to children, even the newly-born, suffering under diarrhœa and dysentery. He advises that strict attention be given to the quality, so as to secure the article in purity; and he recommends that prepared by Monnet, of Geneva, which is of notable whiteness, and in the form of silvery-bright crystalline needles. It is extremely soluble in water. Dr. Moncorvo recommends the topical application with the fine pencil-brush, to be repeated every two hours. The first application, he says, sometimes aggravates the coughing fits, but this irritation ceases in two or three days. In twenty cases treated by him, he was not disappointed in his expectation in a single instance, and some of them had been very obstinate, or even dangerously complicated, as with hereditary syphilis, threatened hydrocephalus, pulmonary tuberculosis, intermittent fever, etc.

Resorcine, in its source, being a congener of carbolic acid, no doubt acts in a similar manner as a parasiticide. Dr. Moncorvo states that he has, by numerous microscopic examinations of sputa expectorated by his patients laboring under whooping-cough, verified the statements made by Letzerich, Henke, Steiner, Hagenbush, and other writers, as to the parasitic character or complications of the disease. The treatment advocated by him is, therefore, free from all insinuation of empiricism, and, as the article is not expensive, it will no doubt be largely sought after.—*Canada Lancet*, April, 1885.

WHAT IS THE PROPER TIME TO TAKE MEDICINES?

The question whether a prescribed medicine should be taken before or after a meal is often put to the physician, and occasionally requires some special consideration. The medicines which act as local irritants, such as the salts of copper, iron, zinc, and arsenic, in large doses are to be taken after a meal when the stomach is full, while small doses of medicines acting on the gastric terminations of the vagus ought to be taken before a meal. In some instances we have to consider chemical changes. Oxide and nitrate of silver, if intended to act locally on the gastric mucous membrane, must likewise be exhibited when the stomach is empty. It is not generally known, or at least observed, that iodine and its salts are to be administered on an empty stomach, as the presence of starch and acids, modifying or decomposing the preparations of iodine, would reduce or prevent their effect. The acids intended to affect the gastric juices are to be taken before a meal in order to provoke an ample secretion of the gastric glands. If alkalies are to modify the gastric juices, they must be given during the meal; but if their absorption into the blood is desired, they ought to be ingested on an empty stomach, in order not to hinder the process of chymification by weakening the acids. Metallic salts, especially corrosive sublimate, likewise tannic acid, alcohol, and other drugs, modify or destroy the digestive power of pepsine, and are hence to be exhibited solely before meals. Small quantities of alcohol, as contained in the ordinary and medicinal wines, do not injuriously affect pepsine like the liquors rich in alcohol. Iron, phosphates, cod-liver oil, and similar medicines may be taken during meal-time (*Bull. Gén. de Thérap.*).

THE PHYSIOLOGICAL ACTION OF BRUCINE AND BROMO-STRYCHNINE.

The physiological action of brucine and bromo-strychnine has been investigated by

Dr. LAUDER BRUNTON with the following results: brucine has a convulscent action like strychnine, but weaker in itself, and also lessened by diminution when brucine is taken into the stomach; 0.1 gramme injected into the abdomen of a rat caused emprosthotonic convulsion and death in three minutes; 0.1 gramme given to a rat in salt produced no symptoms. In a rabbit it produced sudden death after some minutes. Brucine and strychnine kill by convulsions, but iodide of methyl-strychnine produces paralysis. Bromo-strychnine somewhat resembles strychnine, its action being on the spinal cord, and not on the brain, as the effects continue even in the decapitated animal.—*Journ. of Amer. Med. Association*, May 2, 1885.

ON A NEW METHOD OF EMPLOYING BROMIDE AND IODIDE OF POTASSIUM.

The marked repugnance which the bromide and iodide of potassium provoke in a large number of patients, in whom they are imperiously indicated for numerous affections of a rheumatic, gouty, nervous, scrofulous, and syphilitic nature, has led to various hitherto but partially successful efforts of freeing these valuable drugs from this objection. Epileptic patients, who have to take large doses of the bromide of potassium daily, often object to this treatment on account of the gastric irritation which the remedy produces. There are even syphilitic patients who prefer the consequences of their diathesis to the ingestion of the potassium salt, for which they express an indomitable antipathy. In women especially, in whom the exhibition of bromides is so often called for, the practitioner is occasionally confronted with the necessity of abandoning a positively useful drug for the sake of the subjective inconvenience it causes in the patient. Children, when being treated with bromides for cardiac affections, likewise show their disgust of the medicine very plainly.

Though a great number of preparations containing these drugs in a syrupy vehicle have been offered to the medical public, we find that the nauseating, syrupy taste is always objected to by the patients, and that the exact regulation of the dose is rendered somewhat difficult, as the spoon is sometimes more, sometimes less, accurately filled. In the light of these facts, it must be regarded a pharmacological acquisition that MR. POISSON, a prominent French apothecary, had the happy thought of incorporating these salts with chocolate and presenting them in the form of pastilles (lozenges), containing each 3 grains of either drug (*Le Progrès Médicale*, April 4, 1885). Ease of ingestion, even for the most delicate and fastidious patients, perfect preservation (they contain butter of cacao), ready solubility, and avoidance of all gastric irritation are the striking features of the new preparation, which, we feel convinced, will rapidly rise in favor even in this country. It would possibly be advantageous to prepare also lozenges containing a higher percentage of the salts, as large doses of the drug are occasionally to be taken. In conclusion, we beg to recall that Cl. Bernard has long intimated that the absorption of both bromides and iodides would be essentially facilitated by the combined addition of fatty matters and sugar. Poisson's preparation then appears in perfect correspondence with Cl. Bernard's prescription.

CASCARA SAGRADA.

At a recent meeting of the Staffordshire Branch of the British Medical Association, DR. REID read a paper upon the value of this drug. After discussing the opinions of different writers on the subject, and commenting on the fact that very little had been written about the action of the drug, Dr. Reid gave the opinions he had formed of it from an analysis of thirty-three cases, of which he had taken careful notes. He found, 1, that the result was all that could be desired in twenty-seven cases of obstinate and habitual constipation, complicated in many cases by various forms of dyspepsia, and in many people usually of sedentary habits, more especially females; 2, that the effect was most beneficial in three cases of hæmorrhoids; 3, that the drug was of no service, even in very large doses, in one case of obstinate constipation, although it did not cause pain; 4, that it had to be discontinued in two cases on account of its causing pain and sickness. The form of drug used was the fluid extract. The conclusions arrived at were as follows: 1. Cascara sagrada was a most useful remedy, both regarding its immediate effects and after-results in obstinate and chronic cases of constipation. 2. It was better to prescribe it in continuous small doses rather than in occasional large ones. 3. Cases were met with in which, even in large doses,—at any rate, in the form of the fluid extract,—the drug had not been of service. 4. No rule could be laid down by which one could ascertain previously whether the drug would suit

or not; but, when pain was produced, in all probability it was owing to too large a dose being given. 5. It was of great service in cases of hæmorrhoids when other aperients had failed.—*British Medical Journ.*, April 11, 1885.

ON ACONITINE IN NEURALGIA.

Though the deadly virulence of aconitine, even in minute quantities, will always form a serious obstacle to its gaining popularity among the medical public, we are in certain affections practically compelled to resort to it. We abstract from the *Gazette Médicale de Paris* (March 21, 1885) some considerations as to its physiological and therapeutic action.

Aconitine is a powerful and rapid modifier of the nervous system; its predominant effect is concentrated at the base of the brain, consequently its influence extends over the entire system of the great sympathetic and the vast domain dependent upon the latter, enclosing the principal vital functions. Besides, it powerfully affects the sensitive nerves, reduces or suppresses their energy, and causes anæsthesia: at the same time it calms the circulation, diminishes the calibre of the capillaries, and lowers the temperature. These physiological properties, so characteristic of aconitine, render the drug peculiarly adapted for the relief of painful affections, and especially of neuralgias. The remedy is most eligible in all forms of congestive neuralgia and dermodynia (dermalgia) which have their seat in the extremities of parts where the corpuscles of Pacini are abundant. In affections of the trigeminus the effects of aconitine are often marvellous, as illustrated by the following case. Nélaton had performed resection of all branches of the trifacial nerve on a patient without, however, in the least abating his excruciating pains. The patient, almost driven to despair, demanded another operation; extirpation of the Gasserian ganglion had been decided upon, when, upon the recommendation of Prof. Gubler, the employment of aconitine was tried. In a short time the patient expressed himself to be utterly free from all pain and continued to be so. In *tic douloureux* aconitine has often proved the only relief-affording remedy; the same may be said of irritating and painful affections of the respiratory tract, as in asthma and convulsive cough; also of nervous palpitations, angina pectoris, and in the painful acute forms of rheumatism and gout, where the drug calms both the nervous and the vascular erethism. As certain patients are particularly susceptible to the action of aconitine, minute and largely-diluted doses of its solution have to be begun with. Granules exactly dosed are doubtlessly the most preferable preparation of aconitine.

THE PREVENTION OF HEAT-APOPLEXY.

At a recent meeting of the Epidemiological Society of London, SURGEON A. C. C. DE RENZY, C.B., read a paper, the object of which was to apply Indian experience in the prevention of heat-apoplexy among the troops in the Soudan, the teachings of which admit of general application. The writer resided for many years at Multan, in the Punjab, one of the hottest places in the world, and saw a great deal of heat-apoplexy among the British troops and railway employés. In June the temperature in the shade rose to 120° F., and a black-bulb thermometer registered 176° F. An ordinary thermometer exposed in the sun registered 157° F. The dryness of the air was extraordinary. The mean humidity of May was only 26, and the minimum humidity was as low as 17, saturation being 100. Dust-storms occurred at very short intervals all through the hot weather. The nights were comparatively cool. In June, the hottest month, the minimum thermometer went down to 71° F. About 10 P.M. the sky became perfectly cloudless, and the earth very rapidly radiated the heat stored up during the daytime. But there were usually three or four intensely hot nights in the year, when the clouds did not disperse, and radiation was obstructed. On such occasions the writer had found his bed so intensely hot that he had had to have water sprinkled over it. The mean daily range of May was 34° to 43° F. The climate of the Soudan was several degrees cooler than that of Multan, and not at all so trying; and as experience showed that a very fair standard of health could, with suitable arrangements, be secured for British troops at Multan, it was reasonable to hope that, so far as high temperature was concerned, a similar result might be obtained in the Soudan. Multan had long been one of the healthiest stations in Northern India. Taking the returns of the last eighteen years, it stood fifth in the order of healthiness. Bareilly stood first, with a death-rate of 12.01 per 1000; Fort William second, with a death-rate of 12.33; while the death-rate of Multan was 15.15 per 1000, or less than the death-rate of the troops stationed in England thirty

years ago. All through the summer of 1848 the fort of Multan was invested by a British force. The troops had little sickness, and few casualties from heat-apoplexy. Lord Gough was altogether opposed to the operations being carried on in the summer, as he thought it impossible that the troops could withstand the heat. With good tents, a good commissariat, and arrangements well adapted in other respects for the protection of the troops, the campaign was brought to a brilliant close.

Heat-apoplexy occurred under two very different circumstances,—(1) under exposure to the direct rays of the sun, and (2) under exposure to great heat in the shade. The deaths under the second head were far more numerous than those in the first. For the prevention of heat-apoplexy, especially under exposure to the direct rays of the sun, two things were necessary,—(1) that the clothing be loose and light, so as not to interfere with the free movements of the chest and evaporation from the skin, and so as not to obstruct the cervical circulation, and (2) that a supply of drinking-water should be always at hand to relieve the first signs of thirst. The importance of these precautions was illustrated by several striking cases that fell under the writer's notice. The want of water caused great loss of life from heat-apoplexy on field-service in India. Natives used immense quantities of water under exposure to the sun, and to this practice was attributed their immunity from heat-apoplexy. While the deaths from this disease among British troops were 20 per 10,000 of strength, they were only 2 per 10,000 among the native troops. Heat-apoplexy was very rare among the officers, who are careful about their dress, and also to have something at hand to relieve thirst. Sportsmen who went out shooting in the hottest weather suffered very rarely, and the disease was unknown among Assam tea-planters, a large class, whose business required them to expose themselves in the sun in the hottest season and in the hottest time of the day. The great majority of cases of heat-apoplexy among soldiers, due to exposure to great heat in the shade, occurred between sunset and midnight. This was attributed to the peculiar meteorological condition of that period of the day, in conjunction with the crowding of the men in the canteen. The breeze died away; clouds formed, obstructing radiation; and while this lasted the men crowded in dense masses into the canteen, the ventilation of which was altogether inadequate. Crowding, even only for a short period, was most dangerous when the air was very hot. The danger was much increased when excess in the use of alcohol was superadded. As a means of cooling the barracks, it was proposed that they should be douched every evening after sunset. This proposal, when made some years ago, had the approval of Mr. Edwin Chadwick, but it was found impossible to give it a trial. In conclusion, it was contended that experience in the hottest parts of India warranted the hope that, under good arrangements, the losses from heat-apoplexy among the troops in the Soudan might be kept within very moderate limits. With good tents of the Indian pattern, attention to clothing, good arrangements for the supply of water, avoidance of overcrowding, especially in tents or huts, and extreme moderation in the use of alcohol, for which tea should be substituted, the losses from heat-apoplexy would be very small.—*British Med. Journ.*, April 11, 1885.

TREATMENT OF IRITIS.

The symptoms of iritis are very constant, no matter whether the affection be due to syphilis, rheumatism, or any other cause. The patients complain of orbital and periosteal pains; the cornea is injected; the coloration of the iris becomes altered; the membrane itself grows infiltrated and prominent, reacting but feebly to light; the pupil shows irregularities due to adhesions. Later the aqueous humor grows cloudy, and occasionally we observe minute grayish deposits on what is known as the membrane of Descemet. We then have to deal with the so-called punctuated keratitis (serous iritis).

The diagnosis having been established, our first therapeutic interference is to be directed toward complete dilatation of the pupil by atropine. If the action of the atropine instillation be not powerful enough, 2 drops of a five per cent. solution of cocaine seem to double the action of that alkaloid, as asserted by Dr. Davier (*Progrès Médicale*, April 4, 1885). If the pupil should nevertheless remain contracted and the corneal injection cause ecchymosis, leeches or cups applied to the temple are advised. The inunction of a belladonna-ointment into the temples will be found useful in every case, regardless of its origin. Excessive pains call for injections of morphine or for chloral; warm compresses to the eyelids are an especially grateful application. These are the outlines of the general treatment of iritis when definite causative data are absent.

If a specific nature of the affection be either established or suspected, mercurial inunctions and iodide of potassium internally (30 grains daily) are to be insisted upon. In absence of any specific taint, we can often detect a rheumatic element; then salicylate of sodium is to be exhibited. Additional relief will always be afforded by warm baths, dry frictions, and air-baths. Cases of tertiary syphilis presenting iritic symptoms will require the hypodermic employment of corrosive sublimate. In absence of all etiological indication in what is termed simple iritis, mercurial inunction and the iodide of potassium are still useful as interstitial absorbents. Therefore, if a rheumatic diathesis cannot be ascertained, the specific treatment is invariably to be resorted to first. An energetic and sufficiently long-continued treatment will usually prevent the chronic form of this affection, which of course implies grave troubles.

THE ASEPTIC TREATMENT OF THE ALIMENTARY TRACT.

Ordinarily a number of more or less severe disturbances in the alimentary canal form part of nearly every acute or chronic disease, and where the symptoms of the remote affection attract more attention than the accompanying septic process in the alimentary tract, the latter may decide the gravity and extent of the remote disease. Our food, mostly composed of organic substances, after entering the alimentary canal may, under certain conditions, become decomposed in a way different from proper digestion and physiological assimilation. Fermentation, putrefaction, and kindred processes may occur, and these anomalies are probably almost always caused by invasions of micro-organisms. There are a great many means which aid to render digestion aseptic, but of the numerous remedies used for this purpose DR. ACHILLES ROSE (*New York Medical Record*, April 25, 1885) advises the yellow oxide of mercury, as recommended by Schaffer.

Dr. Ludwig Schaffer, surgeon on board of an Austrian man-of-war, with a crew of two hundred and seventy-eight men, traversing the tropics twice within six months, had opportunity to study the influences of high temperature combined with moist atmosphere, which manifested themselves in loss of appetite and derangement of digestion, sometimes with serious complications. The bill of fare for the men, nutritious enough but offering very little variety, and only calculated for young, strong, and healthy stomachs, gave less and less satisfaction every day. The sultry night air interfered with sleep, and the men's state of nutrition became conspicuously impaired. All these cases thus affected improved and were cured by the use of the yellow oxide of mercury alone. After this favorable result Dr. Schaffer did not wait until derangements of digestion and nutrition assumed a serious extent and obliged those affected to report for the sick-list, but he held weekly sanitary inspections of the crew, and gave in more than fifty cases, as a prophylactic measure, generally 1 and in rare cases 2 centigrammes of hydrargyrum oxydatum flavum. The daily dose was about from 1 to 2 milligrammes.

The effects in these cases also were uniformly good; appetite and the digestive functions soon improved in a marked manner; many expressed themselves decidedly as having a good, even a ravenous appetite. Within two or three weeks most of the men thus treated looked extremely well-nourished and had good color. This all happened under circumstances not favorable to such rapid improvement of nutrition.

Ill effects from the administration of these doses of this form of mercury (it was given in over two hundred cases) were not observed in a single instance, not even where, as in cases of severe forms of angina, exceptionally, 4 to 10 centigrammes were given in a few days.

Dr. Schaffer recommends the dose of 1 to 2 milligrammes, to which are added 1 to 2 grammes of sugar respectively as a constituent, to be taken daily after a meal consisting of milk, eggs, or similar nitrogenized food, in all acute or chronic derangements of the alimentary tract, in typhoid fever, during the reconvalescence from surgical diseases, in phthisis, and in all cases where nutrition is impaired from any cause. He had occasion to observe a case of severe relapse after dysentery, with abscesses of the liver, in which the final recovery was seriously in question on account of the loss of appetite. The whole list of the stomachic remedies had been tried in vain, until finally the yellow powder caused a return of the appetite and unmistakably brought about decided improvement and a change for the better in the whole pathological process.

Thus in many cases everything is gained for the patient if only digestion be improved. According to Schaffer, much can be accomplished with 1, 2, or 3 centigrammes of hyd. oxyd., to be given during two or three weeks,

and in some instances within a shorter period. Rarely will it be necessary to increase the dose. In chronic affections—pulmonary diseases, for instance—it is advisable to observe long pauses of three to six months before commencing a new term of administration of the remedy.

Schaffer gives the following formula: ℞ Hydrargyri oxydi flavi, 0.01; sacchari, 10.00. M. et divide in 8 partes æquales; D. et S., 1 powder daily,—and he advises especially this dilution of one part of hydrargyrum with a thousand parts of sugar. Dr. Rose prefers, for convenience' sake, compressed tablets in which the sugar is added in the same proportion as in Schaffer's formula. Three tablets contain one milligramme of hydrargyrum. Tablets containing one whole milligramme with a whole gramme of sugar would be too large for any one to swallow without difficulty, while tablets containing only 0.0003 have the advantage of being of service in cases of children, for whom they may be pulverized if the little patients cannot swallow tablets.

Dr. Rose states that he has had only limited experience as yet with the yellow oxide of mercury, but in those cases of dyspepsia in which he prescribed the drug, especially in a case of pneumo-phthisis, he was very well satisfied that it merits all the praise Dr. Schaffer has bestowed upon it.

Mercury is a means by which failing digestion and nutrition may almost certainly and promptly be improved. In very minute doses it is a most reliable antiseptic. Whatever the explanation of the excellent action of corrosive sublimate in diphtheria may be, one thing, it appears, is certain,—it has a decidedly good and reliable effect on the septic dyspepsia associated with diphtheria.

Experience will have to decide whether the yellow oxide of mercury or the corrosive sublimate are to be preferred in the aseptic treatment of the alimentary tract. Perhaps it may matter very little which of the two is chosen, as long as the principle of their employment is established and the proper indications are fully known.

DESICCATED OX-BLOOD.

The old popular belief in the medicinal virtues of a blood-regimen has recently been resumed with considerable enthusiasm. In Paris, as we read lately in a secular journal, there are butcher-shops exclusively devoted for the preparation and instantaneous dispensation of this rather repulsive medicine. As efficient adjuvants to this cure, baths in the same menstruum are equally *en vogue*. From theoretical grounds there would appear little doubt that this indirect transfusion of animal blood can exert a favorable impression upon a flagging or wasting constitution, though we fail to appreciate the utility of the blood-bath. It is, then, little surprising that therapeutists, in just deference to the popularity of the remedy, have subjected it to clinical trials, and having become convinced of its therapeutic value, do not hesitate to utilize it, though in a somewhat modified form.

GUERDER (*Deutsche Med. Zeit.*, March 17, 1885) openly advocates the systematic administration of ox-blood powder, prepared so as not to remove the salts of the blood. Fresh defibrinated blood is heated for four or five hours in a water-bath and then slowly dried by currents of warm air, the entire preparation covering a period of at least three days.

Guerder gave this blood-powder to fifty-one sick and healthy individuals, and reports that it was well borne by forty-four of them. In three instances (reconvalescence from typhoid fever) he noted vomiting, and in four others (anæmia) gastric irritation.

Children usually are ordered 2 drachms, adults 6 drachms, of the powder, to be taken at meal-time in cold liquids (water, wine, milk, black coffee).

Without desiring to express any premature comments upon the blood-regimen, though indeed rather favorably impressed as to the nutritive value of this certainly cheap stimulant, we nevertheless doubt that it ever will gain popularity with us. Popular prejudice against heroic medication is too intense in America to be overcome even by unmistakable evidences of its advantages. Besides, we think that kefir-kumys, or even ordinary kumys, the preparation and advantages of which have been explicitly discussed in the February number of the THERAPEUTIC GAZETTE, would go far to meet the same indications.

THE USE OF PERMANGANATE OF POTASSIUM IN CASES OF INSANITY ASSOCIATED WITH AMENORRHŒA.

The permanganate of potassium has recently been attracting considerable attention in the treatment of amenorrhœa, and we have in several numbers of the GAZETTE laid before our readers the results obtained by different physicians with the use of this drug in that pathological condition. In the *British Medical Journal*, April 18, 1885, MR. P. MAURY

DEAS states that he has employed it frequently in obstinate cases of amenorrhœa associated with mental derangement, either as a cause of the latter or as a coexisting condition, both depending on a common cause, such as sudden shock, fright, etc., and he reports several cases in which the use of this drug was followed by marked success. One point to which he draws special attention is that the use of permanganate of potassium in the treatment of amenorrhœa must be persisted in for some time, as frequently success will ultimately be attained, even though the remedy has been administered for months with no apparent improvement. But even in such cases where the use of the drug has not been followed by the reappearance of the catamenia, there has still been marked improvement in the general mental and bodily condition. The permanganate, indeed, as he states, seems to act as a general and nervine tonic, assimilation being greatly promoted and the anæmic condition removed. Although he acknowledges that his results are still too scanty to admit of positive conclusions, he thinks that the following points are pretty clearly established:

1. Permanganate of potassium is a useful and safe emmenagogue, and free from the disadvantages which attend some others of the remedies of this class.

2. Its use may be continued for months without any bad effects, and success need not be despaired of, even after many months.

3. Even when it fails as an emmenagogue it acts beneficially as a general nervous tonic. Mr. Deas recommends kaolin ointment as the best excipient for making the pills, in which form this drug should be always administered, and saccharine ingredients should be avoided as being liable to cause decomposition and even spontaneous combustion. He has never found any symptoms of gastric or intestinal irritation to follow the internal administration of 3 to 6 grains.

AMMONIA IN THE TREATMENT OF COLLAPSE.

TRUSSEWITSCH, of Kronstadt, reports three cases of collapse treated with aqua ammoniæ. In one of them, caused by poisoning with nitric acid, he gave, after the failure of other excitants, 40 drops of ammonia in a glass of water simultaneously with a hypodermic injection of 10 drops of ammonia and ether, followed by a champagne enema. The patient revived promptly, but showed an hour later, at the point of the hypodermic application, a dark-red infiltration of an erysipelatous character, causing finally corresponding circumscribed mortification of the skin.

Two other cases of collapse, resulting from foul air on board a vessel, yielded readily to a full hypodermic injection of ammonia, though nothing is intimated of the local appearances (*Deutsche Mediz. Zeit.*, No. 17, 1885). Maceiven (*Glasgow Med. Journ.*, 1872) saved an old man poisoned by 40 grains of opium by four successive intravenous (cephalic) injections of ammonia. Tibbs lost two and saved one patient (*Med. Times and Gaz.*, 1872) by the same procedure. Cotton (*Edinb. Med. Journ.*, 1875) and Flint (*Boston Med. and Surg. Journ.*, 1879) were equally successful with the intravenous injection of ammonia in collapse.

THE PREVENTION OF SEPTICÆMIA IN CASES OF MORBIDLY ADHERING PLACENTA.

With the exception of post-partum hemorrhage, adhering placenta is one of the most troublesome consequences of the lying-in state. It is, moreover, much dreaded by many practitioners, owing to the probability of septic matter finding its way into the circulation; but this complication Mr. Keith Macdonald (*British Medical Journal*, April 18, 1885) claims can be almost entirely avoided by the free and early use of quinine. In support of this statement, he reports a case in which it was absolutely impossible to remove the placenta after labor, even under chloroform. An opiate was given to the patient, with ergot and brandy, and the uterus and the vagina were syringed with a weak solution of Condy's fluid, and on the next day, although there were no febrile symptoms present, 5 grains of quinine were ordered every four hours. Two days after delivery she had a severe rigor, the pulse rose to 130, the temperature to 105°, but the assiduous application of the carbolic lotion, which had been substituted for Condy's fluid, and the continued administration of quinine served to remove these serious symptoms, and in the same evening nearly all febrile phenomena had disappeared; there was no tenderness on pressure over the abdomen, and she felt fairly well, though the secretion of milk was diminished in quantity. On the following day she had another rigor, and a pulse of 130 and a temperature of 104°; the milk was almost entirely suppressed, and the lochia slightly offensive, but normal in quantity. In

the evening the pulse and temperature continued high, but there was still no abdominal tenderness. On the following morning the lochia was somewhat more offensive, and a small portion of the placenta had come away. The febrile symptoms were still marked. Two days later the last of the placenta apparently came away, and from that date she continued steadily to improve, without a bad symptom. The most noteworthy point in the above case is the early stage at which quinine was administered, and it is probable that had Mr. Macdonald waited until there was a considerable rise of temperature, with abdominal symptoms, its administration would have been of no avail. The removal of the clots ten hours after the confinement is also an important item, for if they had not been cast off septic matter could scarcely have failed to enter the system.

PHARMACOLOGICAL NOTES.

Some comments on recently introduced drugs made by the well-known chemist and manufacturer, MERCK, cannot fail but claim our interest (*Pharm. Post*, No. 12, 1885).

Bismuthum peptonatum siccum pulv. is a new and not infrequently demanded drug, which, containing 3.5 per cent. of soluble oxide of bismuth in a dose of 75 grains twice daily, is said to be an efficient remedy against gastralgia and dyspepsia.

Cannabinum Tannicum.—The hypnotic virtues of this remedy have been repeatedly questioned by several able observers, while other equally careful experimenters are very positive in claiming high hypnotic properties for it. Merck thinks these contradictions find a partial explanation, at least, in idiosyncrasy and the existing degree of insomnia, as is also the case with morphine. It is certain, though, that its freedom from objectionable secondary symptoms allows of a favorable comparison with morphine. The difficulty of its preparation and probable inequality of the drug form, no doubt, another reason for the observed diversity of physiological action. Merck claims to have at last succeeded in so preparing the drug as to obtain constancy of form and action, which, in a dose of 7 grains, can be relied on as a mild though prompt hypnotic without after-effects. His remarks on cannabinon contain nothing new to the readers of the THERAPEUTIC GAZETTE.

Pelletierine.—The rind of the pomegranate-root contains four alkaloids, of which only two, viz., pelletierine (punicin) and isopelletierine, have a strong anthelmintic action, while methyl- and pseudo-pelletierine have hitherto been regarded as inert. Hence the former ones may be used promiscuously against tapeworm. They are usually given in the following form: Pelletierine tannicum, dose, 22 grains in water, with following purgative, or pelletierine sulphuricum with tannic acid. Seven grains of tannic acid dissolved in water are taken on an empty stomach, then 6 grains of sulphate of pelletierine, and after half an hour the evacuant is taken. It is advantageous to exhibit tannic acid and the sulphate of pelletierine simultaneously, prescribing,—

℞ Pellet. sulph., gr. vi;
Acid. tannici, gr. vii;
Aquæ dest., f℥i.

S. To be taken in two portions within half an hour.

ANTIPYRINE.

Still further confirmation has been added to the testimony which we already possess as to the value of antipyrine as an antipyretic. DR. G. B. BUTLER employed this drug in a number of cases in hospital practice, and his results are thoroughly in accordance with those obtained by previous investigators. He gives the following summary as the results of his experience:

1. Antipyrine is a certain, safe, and powerful antipyretic in almost all diseases attended by high temperature, but it is not an antiperiodic.

2. It is especially useful in typhoid fever, pneumonia, and phthisis, producing the apyrexia of quinine, salicylic acid, and cold baths, without the concomitant unpleasant effects of the latter.

3. The reduction of temperature occurs rapidly, and persists for an average of twelve hours.

4. Its dose is double that of quinine: 3 grains for a child under one year of age, 7 grains under five years of age, and 30 grains for an adult form the usual maximum dose. Half the quantity may be given subsequently at intervals of one, two, or three hours, according to indications.—*N. Y. Med. Journ.*, May 2, 1885.

ON OBESITY.

The various systems of reducing an unnatural fattiness having recently been the subject of frequent discussion, our readers will be interested in the pathological views on universal lipomatosis as expressed by PROF.

KIRSCH, of Marienbad (*Wiener Med. Woch.*, No. 10, 1885).

The distinction which Kirsch makes between a hereditary and acquired form of the affection is particularly noteworthy. The former springing from a congenital abnormality of the cellular elements impeding the free combustion of fatty matters, develops itself apart and independently of all influencing conditions and in spite of dietetic and therapeutic measures, and usually leads to an early death. The acquired form, which is nearly always caused by nutritious defects or errors, allows of a more favorable prognosis if subjected to a timely and rational treatment. The principal danger in fat persons threatens from the heart. The fatty heart (lipomatosis cordis) suffers for two reasons,—the demands on its functional work are heightened by the general tissue-augmentation, while its working-power decreases in direct proportion to the fat-deposit. The extension of the fatty tissue besides creates new blood-vessels, which alongside of arterio-sclerosis, the usual attendant of the fatty heart, form powerful impediments to the cardiac power, though augmented functional activity leads here as in other cases to compensatory processes. We can soon note thickening and dilatation of the left and right ventricles, distinct insufficiency on the entire organ, asthma, palpitation of the heart, and anginose conditions. Death ensues mostly under symptoms of venous congestion. Sometimes the lethal issue arrives with unexpected rapidity through paralysis of the heart, due to overwork and exhaustion of its muscle, through apoplexy resulting from the increased arterial pressure on sclerosed cerebral arteries, or, finally, through acute pulmonary œdema, the left ventricle becoming paralyzed and the right remaining still active.

Next to the heart the lungs may give rise to serious or fatal complications. The respiratory process is considerably hampered, the deposit of fat on the thorax and abdomen interfering with the full expansion of the respiratory muscles and the diaphragm. The compression of the lungs which thus results and the passive congestion due to cardiac weakness soon lead to catarrh of the finer bronchioles, dyspnœa, asthma, and pneumonia, with a fatal termination in most instances.

The kidneys suffer likewise from the local deposit of fat and the disturbed equilibrium between the arterial and venous systems. The urine is decreased in quantity, of a dark-brown color, strongly acid, of high specific gravity, and contains albumen, urates, and crystalline uric acid. Anasarca, dropsy, and effusions into serous cavities usually appear. Chronic alcoholism furnishes not rarely a very grave complication favoring arterial sclerosis, and leading to inflammatory infiltrations and complete contraction of the renal structures.

AN OPERATION FOR DISPLACED SEMI-LUNAR CARTILAGE.

The ordinary treatment of displaced semilunar cartilage of the knee-joint is to reduce it by flexion, extension, and manipulation, to apply a splint or elastic bandage in order to keep the joint at rest and to prevent the displacement from re-occurring, and, if effusion be present, to employ the usual remedies to promote its absorption. But, as is well known, the displacement tends constantly to recur, and so seriously interfere with the patient's occupation and comfort.

In the *British Medical Journal* for April 18, 1885, MR. THOMAS ANNANDALE reports the following case, in which he employed an operation for producing radical cure in a chronic case of displacement of the semilunar cartilage. The result obtained in this case was so excellent that it should encourage practitioners and lead to the adoption of this or some similar procedure as an established means of treatment when the more simple methods fail to give relief.

A miner, aged 30 years, was sent to him from the North of England on November 1, 1883, with the following history. About ten months before his admission he was working in a kneeling position, when he felt something give way in his right knee. He suffered sharp pain, but continued at his work for a few hours. Great swelling of the joint followed, and the pain became much aggravated, so that he could not return to his work, and he had not since worked at his occupation. The condition was treated by rest, blistering, the application of iodine, and various liniments, with the result of reducing the swelling; but the pain still continued, and the movements of the joint were interfered with by something "slipping in the knee."

On admission, the joint was slightly swollen and there was a small amount of effusion into its cavity. The patient complained of acute pain in certain movements of the joint, which frequently became locked in the flexed position. He was able by a little manipulation to unlock the joint, but the frequency of this symptom made him quite unfit to follow

his employment as a miner. On careful examination of the joint, there was a well-marked hollow over the anterior border and position of the internal semilunar cartilage. This hollow was most marked when the knee was flexed. Having decided that the case was one of displaced semilunar cartilage, and one not likely to be cured by any ordinary treatment, the following operation was performed.

An incision was made along the upper and inner border of the tibia, parallel with the anterior margin of the internal semilunar cartilage; and, the few superficial vessels having been secured, the joint was opened. It was then seen that this semilunar cartilage was completely separated from its anterior attachments, and was displaced backwards about half an inch. The anterior edge of this cartilage was now seized by a pair of artery catch forceps, and it was drawn forwards into its natural position, and held there until three stitches of chromic catgut were passed through it and through the fascia and periosteum covering the margin of the tibia. The forceps were then withdrawn, the cartilage remaining securely stitched in position. The wound in the synovial membrane and soft textures having been closed with catgut stitches, a splint and plaster-of-Paris bandage were applied, so as to keep the joint at rest. The progress of the patient after the operation was perfect, the temperature never rising above 99° F. Seven weeks after the operation the splint and bandages were removed, and gentle movements of the joint practised.

On January 25, 1884, the patient was dismissed cured, the movements of the joint being good and the limb steadily gaining strength. In April of the same year the patient returned to show the result. He had perfect movement in the joint, and had never had the slightest stiffness or locking of the joint since he commenced to go about after the operation.

GLYCERIN AS A PROPHYLACTIC AGAINST TRICHINOSIS.

In the *Archiv für Kl. Med.*, Bd. 36, 1885, we find a very striking illustration of the prophylactic value of glycerin against trichinosis, which though denied by Fiedler has been previously upheld by Heller (*Ziemssen's Hanb. d. Pathol. u. Ther.*, Bd. iii. S. 404).

A travelling merchant, who had taken some ham with him from home, was suddenly advised by a telegram that the ham contained trichinæ, which was positively verified by a physician to whom he presented the ham for examination. Having, however, previously eaten of the ham, he entered a hospital for treatment. His diet was restricted to a minimum, and he was given first 10 ounces of infusum fol. sennæ comp. in combination (which removed some unincapsulated trichinæ), and was then placed on a glycerin treatment, a teaspoonful to be taken hourly for several days. He completely escaped all symptoms of trichinosis, while nearly all his relations at home, who had also eaten from the same ham, contracted serious illness.

TREATMENT OF GANGRENOUS INTESTINE.

At a meeting of the Medical Society of London, held Monday, April 20, 1885, Mr. Mitchell Banks read a paper on the treatment of gangrenous intestine in strangulated hernia, and related a successful case of resection of the small bowel (*British Medical Journal*, April 25, 1885). He observed that the all-important question in strangulation with gangrene was the plan upon which the gut should be treated. Resection was an operation which was only rarely possible, but as an illustration of the class of cases to which it was applicable he related the history of a young man who was admitted into the Liverpool Royal Infirmary on November 7, 1883. He was a well-nourished strong man, aged 23, who had long noticed an inguinal hernia. This had always been easily returned, until it descended, three days before admission, when at sea. Taxis had been applied by a surgeon, and very violently by the patient. The tumor had also been aspirated. When admitted he was tranquil, the pulse was 80, and there was no fever. He suffered, however, from constant retching, and the scrotum was livid, swollen, and had bullæ on the surface, and there was œdema of the penis, so that the case looked at first sight like rupture of the urethra. It was found that the hernia was congenital. The sac contained a dark, bloody fluid, and in it was a long loop of small intestine, swollen, black, and covered here and there with lymph. It had an offensive odor, and was distended with sanguineous fluid. The stricture was produced by the external ring. On pulling the gut down it was found that, doubtless owing to a second stricture at the external ring, it had ulcerated through higher up. The sac was thoroughly cleaned and covered by a guard of carbolized

gauze. The gut was then pulled down until healthy gut was reached, and the gangrenous portion excised; a wedge-shaped piece of mesentery was also excised; the mesentery contained extravasated blood, and the glands were swollen; the bleeding from the mesenteric vessels and the gut was most profuse, and the necessity of tying a large number of vessels much prolonged the operation. The peritoneum of the mesentery was united by a continuous suture of catgut, first on one side and then on the other. Then the ends of the gut were turned inwards for about a third of an inch, so that peritoneum should come against peritoneum; interrupted stitches were put in all the way round inside the bowel, bringing the inverted edges together. On the exterior a continuous suture was taken all round, passing only through peritoneum. This was practically what went by the name of the Czerny-Lambert suture. The most difficult part was just along the mesenteric attachment, where a small area was uncovered by peritoneum. He thought the fingers of an assistant were better than any instrument for facilitating the introduction of the stitches. Owing to the increase of bulk caused by the inversion and stitching, the bowel could not be reduced until the inguinal canal was freely incised; the sac was tied and removed, leaving only a portion below in relation to the testicle. The operation occupied over two hours, and the patient, at its conclusion, was in a state of collapse. He soon rallied, and ten hours after the operation he passed flatus. The temperature fell below normal several times during the first four days, and only on a few occasions subsequently rose above it. The lower part of the sac was left to form the tunica vaginalis. The most important point in the after-treatment was the dietary. For four days the patient was given only ice, and subsequently the diet was limited to Valentin's meat-juice, in small quantities, until the twelfth day. On the twenty-third day he had the first movement of the bowels, after an enema. Six weeks after the operation he was taking ordinary light diet, and could move about easily without inconvenience. Seventeen months later, when last seen, he was perfectly well, and apparently no stricture had been produced.

Mr. Banks then passed on to discuss the general question of the treatment of gangrenous intestine. He referred to the statistics published by Mr. Makins, who collected fifty-five cases of resection of intestine. The percentage of deaths was fifty-two. The cause of death in the majority of cases was septic peritonitis. The operation was first performed in 1727, but not systematically until recent years. According to Mr. Makins's further table of forty cases of resection of intestine for artificial anus, the percentage of deaths was only thirty-eight. This seemed to point to the secondary resection as the best line of treatment in the great majority of cases. If, then, it were decided to leave the gut *in situ*, he thought it best to simply lay the gut open and not to touch the stricture. In six cases of gangrenous intestine under his care, three recovered well under this method; two were moribund when operated on; but in the sixth case, on the sixth day, when the patient was apparently in a fair way to recover, perforation of the intestine occurred just inside the internal stricture. The really important question was whether the stricture should be divided or not. He held that it should not. Death in strangulated hernia was brought about, not by peritonitis, but by absorption of septic material effused into the peritoneal cavity. Division of the stricture might open up a way into that cavity. The plan advocated by Spence, of pulling down a sound piece of gut, was doubtless good, but he questioned whether it was necessary to divide the stricture to do this. The cases appropriate for resection were very few. The patient ought to be strong and in a good condition, and skilled assistance must be at hand.

Mr. Treves was in favor of excision of the gangrenous portion of gut, which was a well-defined area; an artificial anus was then formed. He referred to the danger in resection of not getting beyond the area of gut where gangrene was incipient. Many cases had failed from gangrene in the line of the stitches. The excision of a wedge-shaped piece of intestine was liable, as he had found by experiments on dogs, to lead to disturbance of the nutrition of the part. If resection were performed, he thought discontinuous sutures very preferable to the continuous suture, and Chinese twist to gut. In Littré's hernia, at least, the stricture should under no circumstances be divided.

Sir William MacCormac thought any practical surgeon would agree with Mr. Banks that the operation of resection must be limited to a few cases. He was also disposed to agree with Mr. Banks that the strictured part of the gut ought to be left alone, and that therefore the stricture should not be incised.

Mr. Morrant Baker also agreed with Mr. Banks that, to the majority of cases, the

operation of resection was inapplicable, as the patients were generally in too feeble a state to withstand so severe and prolonged a process. As a rule, he had followed the practice common at St. Bartholomew's Hospital, and had divided the stricture; but the success of the method was not great, and he was inclined to reconsider the question. He very much doubted the wisdom of pulling down the intestine, for by so doing adhesions upon which the safety of the patient depended might be broken down.

MR. JOHN MORGAN doubted whether the operation of resection could replace the ordinary practice of leaving the gut *in situ*. The artificial anus might subsequently be dealt with. The length and difficulty of the operation, and the large mortality after resection, were strong arguments against its general adoption.

MR. MAKINS thought that secondary resection was a very much better procedure, not only because in primary resection the general and local conditions were unfavorable, but because it would be quite impossible to render the gut aseptic. He still thought a mechanical contrivance an advantage, as in so prolonged an operation an assistant could not keep up even and uniform pressure, and the manipulation to which the gut was subjected was unnecessarily increased.

MR. A. P. GOULD thought that, if the practice of pulling more intestine down were followed, gangrene of that portion would probably occur, as a still further quantity of mesentery would be also pulled down, the pressure on the strangled gut increased, and the part of the intestine newly pulled down would become strangulated, and very quickly gangrenous.

MR. BERNARD PITTS considered that the duration of the strangulation was an important element in coming to a decision. Where strangulation was of long standing, immediate resection would be performed under very unfavorable local as well as general conditions.

MR. WALTER PYE suggested that the greater amount of strain on the mesentery produced by pulling down the gut might lead to eventual destruction of the adhesions.

MR. MITCHELL BANKS was glad to find that all the speakers agreed with him in looking upon the operation of primary resection as one that could be but rarely performed. Whether the piece of gangrenous bowel were slit up, or removed, or left alone was a matter almost of indifference. Mr. Treves apparently held the same view as to treatment as Mr. Spence. The portion of gut removed measured between thirteen and fourteen inches.

EXTERNAL APPLICATION OF NITRATE OF SILVER.

KRUG recommends the local application of a weak solution of nitrate of silver against spinal irritation as preferable to the solid stick or the powder. He orders a one per cent. solution in alcohol, and directs its application not only to the seat of pain, but also to the whole neighborhood twice daily. The alcoholic solution has the advantage of allowing of a deeper penetration of the silver into the tissues, and of thus producing a sort of local anæsthesia by causing coagulation of albumen and abstracting water. Krug praises the beneficent and cooling effects of this procedure, which but rarely causes inflammatory irritation. He insists, however, that the treatment should be continued for weeks and months. Cold-water compresses applied at night increase the usefulness of the silver application. This local treatment, of course, is to be regarded only as supplementing suitable internal medication.—*Schmidt's Jahrb.*, ix. 203.

PEROXIDE OF HYDROGEN IN AURAL THERAPEUTICS.

DR. FRANK ALLPORT, of Minneapolis, Minn., writes to the *New York Medical Record*, May 16, 1885, that he has found the peroxide of hydrogen very serviceable in cleansing the middle ear preparatory to an insufflation of boric acid, iodoform, and other antiseptic powders. This substance, H_2O_2, is a combination of so unstable a character that it readily decomposes, liberating one atom of oxygen upon contact with various substances, pus among the number. The oxygen thus liberated is in a nascent condition and very active, and will force pus to escape in the form of bubbles from any cavity in which it may be confined. Dr. Allport first employed peroxide of hydrogen to cleanse the exposed mastoid cells after an operation, and was so pleased with its action in this case that he commenced using it in chronic suppuration of the middle ear. His method of employing the agent is very simple. The meatus is first wiped out with cotton, and then a small quantity of the peroxide is instilled and allowed to remain for a minute or two, during which time the pus will escape bubbling from the meatus. The canal is now cleansed again and a further instillation of

the peroxide is made. The process is repeated until no effervescence is noticed, which is usually after the second application. The parts are then thoroughly dried and the insufflation is made. When the opening in the membrana tympani is so small as to render it difficult for the fluid to enter, a middle-ear syringe is used, and two or three drops passed into the tympanum. Dr. Allport states that the success attending this mode of treatment in his hands has been very gratifying. In order to obtain the best results the peroxide of hydrogen must be fresh. After standing a few weeks it loses much of its strength, and it should be kept in a colored bottle, away from the light, and in a cool place.

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*ON GASTRIC NEUROSES (CONCLUSION).**

II. NEUROSES OF SENSIBILITY.

Our physiological knowledge of the parts of conduction of sensibility is very rudimentary; still we believe the sensible fibres to be included in the net-work of the vagus and sympatheticus. The healthy stomach is barely susceptible of sensibility and pain, as has been shown after traumatism of the gastric mucous membrane. Its power of localization is equally poor, as is demonstrable by an introduced bougie, which is very distinctly referred to pharynx and œsophagus, but is scarcely perceptible in the stomach. Sensation of temperature in the stomach is nearly absent. In fact, the healthy stomach knows but two sensations, viz., that of hunger and its satiety, both of which are referred to the pyloric portion, which is the most sensible.

The symptoms of neurosis of sensibility form two distinct groups, viz.: 1, changed physiological sensations; 2, pathological sensations.

The former includes absence of hunger and satiety, anorexia and hunger.

The latter represents various sensations of temperature, motion, pressure, and pain.

As special neurosis of sensibility, though less sharply defined, Oser mentions:

a. Hyperæsthesia with pressure after each meal, easily mistaken for gastric catarrh. Of especial interest is its etiology; it occurs chiefly in anæmia and in brain-workers. (These patients ought to be urged to eat in spite of the inevitable inconvenience food causes.)

b. Cœliac neuralgia often connected with central lesion.

Regarding the causes of neurosis of sensibility, Oser regards them often as an expression of a central affection, or a symptom of general neuropathy, especially of hysteria and neurasthenia, though their origin may also be due to reflex action or affections of the peripheral nerve-supply.

In establishing the diagnosis, hyperæsthesia of skin, muscular rheumatism, and tabes have to be excluded. The principal diagnostic features for neuroses of sensibility are—

1. Integrity of digestion.

2. Absence of every objective alteration of the stomach.

3. Appearance of symptoms during functional repose.

4. Simultaneous existence of other neuroses, central affection, painful fixed points or foci of irritation capable of provoking reflex neuroses.

5. Presence of mental peculiarities.

The therapeutics are to be in strict harmony with the etiology.

III. NEUROSES OF SECRETION.

These are difficult to diagnosticate, as they are easily mistaken for various forms of catarrh following dyspepsia.

In conclusion, Oser stated that various forms of these neuroses have frequently been simultaneously observed in the same patient.

OPACITY OF THE CORNEA PRODUCED BY COCAINE.

Dr. W. Fletcher Wilson, of Denver, Col., writes to the *New York Medical Record*, May 16, 1885, that he has used cocaine in fifty-six operations upon the eye, with almost uniform success. In one case an enucleation was performed with but little pain, but in another operation of the same kind he was obliged to resort to ether. In two instances the cocaine gave rise to a peculiar symptom. The first case was that of a man, 47 years of age, who had lost his left eye some years before from an injury. The right eye had suffered from ulceration of the cornea, with perforation and adhesion of the iris. A large opacity covered the centre and inner portion of the cornea. A four per cent. solution of cocaine was used, and iridectomy was performed on the outer side. Cocaine was then employed, instead of atropine, three times a day. On the following morning the clear portion of the cornea began to assume a hazy and pitted appearance, and this continued to increase up to the third day, when the cornea was of a light-yellow color and

* See Therapeutic Gazette, May 15, p. 331.

with a roughened surface. The cocaine was then discontinued and a one per cent. solution of atropine substituted. Immediate improvement followed, and continued up to the fourth day, when the cornea was smooth and the cloudiness had disappeared. In a case of discission of soft cataract, in a child 10 months of age, cocaine was used during the operation, and twice a day afterwards. The case seemed to be doing well up to the third day after the operation, when the cornea began to present the same hazy and pitted appearance as in the first case. As the condition continued to grow worse, a solution of atropine (2 grs. to ℥j) was substituted for the cocaine. Under this treatment the corneal cloudiness soon disappeared. That this symptom was due to the cocaine would seem to be shown by the similarity of the two cases and by the rapid and immediate improvement following the discontinuance of the drug in each instance.

MYOCTONINE AND LYCACONITINE.

Myoctonine and lycaconitine were, it may be remembered, the names given to two basic substances separated from the yellow-flowered aconitum lycoctonum by Messrs. Dragendorff and Spon, who arrived at the conclusion that the basic compounds obtained by previous observers from this plant were only decomposition products. The physiological properties of lycaconitine have been reported upon by Herr Jacobowsky, and a similar service has now been rendered in respect to myoctonine by Herr Salmonowitz (*Dissert.*, Dorpat). Myoctonine is described by the author as a yellowish, bitter-tasting amorphous powder, having a composition represented by the formula $C_{27}H_{30}N_2O_3$, and a melting-point between 143.5° and 144° C. In water it dissolves with difficulty, in acidulated water it dissolves more freely, and it is soluble in all proportions in carbon bisulphide, absolute alcohol, chloroform, and benzene. Ether and light petroleum spirit only dissolve traces of it. Myoctonine proved to be a powerful poison, resembling curare in its action, and acting most energetically when introduced directly into the circulation. The subcutaneous injection of 0.075 gramme of the nitrate into a cat produced distinct toxic symptoms, and the injection of 0.1 gramme was always followed by death in twenty to thirty minutes. Mice were killed by one milligramme in three minutes. Lycoctonine and lycaconine, the decomposition products of lycaconitine and myoctonine respectively, were found to resemble the original alkaloids in their physiological action, but to be less powerful.—*Pharm. Journ. and Trans.*, May 2, 1885.

SCHULTZ'S METHOD OF RESUSCITATING THE NEW-BORN CHILD.

At the last annual meeting of the Medical and Chirurgical Faculty of Maryland, Dr. Neale (*Medical Record*, May 16, 1885) illustrated Schultz's method of resuscitating the new-born child in case of asphyxia. The child is held by the shoulders, the thumbs resting upon the thorax, the child's head towards the operator, and its anterior surface to the front; it is then swung upwards, so that its feet perform a revolution, and lie between the head and the operator's body, the trunk being then in a state of forced flexion. The original position is then resumed by a reverse movement, and the repetition of these movements constitutes the method. Dr. Neale regarded it as more effective than Marshall Hall's or Silvester's, and related a case in which resuscitation had been secured after ten minutes, the measures mentioned and all others having been tried in vain.

ON SHOCK AND ITS TREATMENT.

In a critical study of shock intended to elucidate its pathological relations, Gröninger, of Berlin, defines shock as an exhaustion of the medulla oblongata and the spinal cord produced by violent excitation. This definition is no doubt perfectly proper, though it strikes us as if the term "exhaustion" is not sufficiently clear for defining purposes. We abstract here the principal conclusions of Gröninger's very interesting paper.

He recognizes the following varieties:

1. The lowest grade of shock, which causes no appreciable effects.

2. A middle grade, which weakens sensation.

3. A high grade, which extinguishes qualitative sensation.

4. A highest grade, which eradicates both passing and permanent sensations of every kind.

His views of the treatment are noteworthy:

Energetic counter-irritations of the skin are to be excluded as useless and even dangerous.

Abstraction of blood is contraindicated.

Transfusion of blood can only be thought of in cases of great loss of blood.

Opium and chloroform are of no value whatever in shock, while digitalis is worthy of further study.

Alcoholic stimulants and subcutaneous excitation are useful. Horizontal posture, application of warmth, perfect rest, and subcutaneous injection of strychnine are the most recommendable factors of treatment.

METHYL CHLORIDE AS A LOCAL ANÆSTHETIC.

M. TENNESON has, in thirty-one cases, tested methyl chloride as a local anæsthetic. In ten cases of sciatica, the spray of chloride of methyl produced immediate and uninterrupted relief. In seven cases the cure continued during a period which varied from seven days to three months. Twice it was necessary to make a fresh application, and the cure was then perfect. A patient who was unable to work, and had suffered for twenty-nine months, was completely relieved, except from the pain in the heel. Several fresh applications were made, and the pain eventually disappeared. Nine out of eleven cases of muscular rheumatism were successfully treated. The pain disappeared, but muscular contraction remained. Articular rheumatism, acute and subacute, was relieved by methyl chloride; also nodular rheumatism, and chronic rheumatism of the knee, contusion of the shoulder, stitches in the side, cases of pleurisy, tuberculosis, and pneumonia. The pneumonia was cured without any ill effects from the application of methyl chloride. Five or six seconds are sufficient; if the application be prolonged, erythema, hyperæsthesia, blisters, and superficial eschars may result. The spray should be directed obliquely, not allowed to fall perpendicularly on the cutaneous surface. After the first application, there may be ecchymosis of the skin. With female patients the application should last less than five or six seconds.—*British Medical Journal*, April 18, 1885.

ON THE ABORTIVE TREATMENT OF TYPHOID FEVER WITH NAPHTHALINE.

The average American practitioner has wellnigh given up the idea of hunting for specific or even abortive remedies of the zymotic diseases, while the German experimenters are particularly active in this direction. The doubtful effects of the calomel-treatment have been previously referred to. The latest medicine for which abortive properties are claimed in typhoid fever is naphthaline. ROSSBACH claims that of thirty-five cases treated with naphthaline (5 grms. daily) fifty per cent. took a clearly abortive course, while no secondary effects were caused by the drug (*Zeitschr. f. Kl. Med.*, Bd. ix. Hft. 1). If these results could be obtained constantly naphthaline should be the routine medicine in typhoid fever, but until this confirmation is obtained a scepticism will justify our adherence to the expectant method of treatment.

A NEW PREVENTIVE OF MISCARRIAGE.

The leaves of a rutaceous plant, euodia longifolia, a native of Fiji, have recently been sent over to England by a surgeon resident there, who states that they are used by the native women as a preventive of miscarriage. In two cases which came under his notice the remedy proved successful. In one case there had been seven and in the other two miscarriages previous to the use of the drug. The infusion is used for several months previous to confinement. It is made in a most effectual manner by rubbing the leaves into a pulp with cocoanut-milk, adding more liquid and straining, the resulting greenish mixture forming the medicine. The plant is known in Fiji as uci-salusalu.—*Pharm. Journ. and Trans.*, May 2, 1885.

NAPHTHALINE.

The readers of the THERAPEUTIC GAZETTE are familiar with the therapeutic virtues claimed by Prof. Rossbach, of Jena, for naphthaline in diarrhœa and old intestinal catarrhs with or without ulcerations. At present we have three different papers on the same subject before us which by no means agree as to the correctness of Rossbach's observations.

Schwarz, of Zurich, could not confirm the astringent and antidiarrhœal properties of the drug, while Rossbach claims that Schwarz did not conduct his experiments properly nor make a sufficient number of trials. Prof. Eichhorst, of Zurich, sustains the objections advanced by Schwarz. In face of these open contradictions a thorough and impartial examination of the drug seemed indicated. Cagnoli and Albertoni have given the drug to twenty patients affected with various forms of diarrhœa (phthisis, mental affections, and simple summer-diarrhœa). The average dose given was 30 grains daily. Nausea, abdominal pains, and dark coloration of the urine were almost always noted when large quantities were

given (2½ dr.), while in doses of 75 grains no complaints were made from the patients except as to its unpleasant odor. In one patient only the drug caused vomiting at each ingestion. A positive effect upon the diarrhœa could in no case be observed, while the treatment with bismuth, opium, or cotoine led to a prompt cure.

THE TOXIC PROPERTIES OF METALS.

M. RABUTEAU opened a debate at the last meeting of the Biological Society on the toxic properties of metals. Some time since, M. Rabuteau asserted that these properties are in proportion to their atomic weight and their specific heat. Lithium is an exception; its atomic weight is very low, yet it kills in small doses. He now maintains that the law of the toxicity of metals holds good, notwithstanding the exception furnished by lithium; that metallic lithium does not kill by its toxic effect, but by its convulsing action on the nervous system. Toxic metals destroy the functional activity of the nervous system, whereas lithium acts on it as a stimulus, and kills slowly instead of rapidly. The specific heat of lithium explains its action. The action of most bodies is ruled by the relation existing between their component atoms and the molecules of the organism. When the atoms preponderate, the nervous system is negatived; when the molecules preponderate, the nervous system is stimulated. The specific heat of strychnine, when accurately calculated, is found to be equal to that of lithium; both provoke death by the same processes. M. D'Arsonval observed that M. Rabuteau's communication argued that the toxicity of metals is equal to the energy they can expend. In electricity this law is incorrect; a given quantity of energy may produce quite different results. It remains to ascertain whether this comparison can be made. M. Grimaux observed that, according to M. Rabuteau's method of calculating, the specific heat of quinine and strychnine is equal; but there is a wide difference in their toxic properties.—*British Medical Journal*, April 18, 1885.

TREATMENT OF ECZEMA.

HENRY J. REYNOLDS, M.D., Professor of Dermatology in the College of Physicians and Surgeons, of Chicago, read a paper at the Illinois State Medical Society, of which the following is an abstract:

He said an intelligent knowledge of the principles upon which treatment should be based always suggests the form of treatment that will be applicable to each case regardless of its name or location. The pathological condition being absolutely identical in no two cases, so the treatment must always vary, and a knowledge of specified lines of treatment or combinations of drugs said to be useful with a neglect of consideration of the principles upon which treatment should be based in each individual case, in this, as in all other diseases, is liable to mislead. Therapeutically speaking he regards the disease as always either acute, subacute, or chronic, regardless of its clinical name or location, and arranges the treatment accordingly.

In the acute form, as in all other acute inflammations, the great principle necessarily involved is *rest*, which implies not only quietude of the member or part, but *rest from all irritating influences*, as scratching, irritation of lice, friction, dirt incident to the calling of the individual, too frequent washing, etc. Soothing and protecting measures, therefore, are indicated in this stage, among which may be mentioned Carron oil, poultices, etc.

In the subacute, as in all other stages and forms, scratching must be strictly prohibited, as it is the most fruitful of all sources of aggravation.

He uses in this and the chronic conditions (either of which may at any time develop acute symptoms and require the treatment changed accordingly) pure, impalpably fine boracic acid as a dusting powder; having first gotten rid of crusts and scales by soaking with oil and washing with soap and warm water. In the chronic, however, he uses greater stimulating measures, in the way of green soap frequently rubbed in during washing. To relieve intense itching he has found nothing so effectual as a first-class letting alone.

He thinks bandaging and strapping advisable whenever practicable, and prefers the cotton roller to the rubber where there is much exudation or maceration of the skin. He reports two cases of twelve and twenty years' standing respectively, of eczema rubrum of the leg associated with varicose veins and ulceration, where many remedies had been tried without success, that he cured by the application of boracic acid and bandaging, and a saline laxative internally.

He says as certain constitutional conditions predispose to the disease, and therefore necessarily aggravate or prolong it when once established, these conditions must be sought after and be corrected.

He has but little faith in the popular skin remedy, arsenic, in this or any other disease; all he knows *positively* of the remedy is that you *can* do harm with it. Chrysarobin, internally, as recommended by Stocquart, he has tried without any benefit.

ON THALLINE.

Sufficient time has elapsed since the discovery of this new antipyretic to allow of clinical test of its value. JAKSCH and ALEXANDER have made the most extensive trials with it, and agree to its positive usefulness when employed in doses of 3 to 4 grains. EWALD has used very much smaller doses (1 to 3 grains), and is equally convinced of the promptness and constancy of its action. Its chief advantages are the smallness of the required dose and the absence of secondary effects, so notable in antipyrine and kairine. The difference between quinine and thalline is that the former is a genuine febrifuge or antipyretic, while the latter only acts by dilatation of blood-vessels, which facilitates the radiation of heat. The immediate rise of temperature after its discontinuation is of course a grave objection. GUTTMANN, of Berlin, greatly prefers antipyrine.

CONSTIPATION AND ITS EFFECTS.

We are frequently reminded, in the history of a very common ailment, how the beginnings of mischief in the body, which as yet mean no more than disease or disorder in its literal sense, may, if neglected, go on to very serious terminations. The causes of constipation are various, and often trifling. Indigestion, whether from torpid function of the mucous membrane, or from too great solidity or bulk of food, must overload the bowel if neglected. Acting with it, to the same purpose, is the want of due muscular exercise. At a later stage of the process, we find the long-abused bowel lose its tone and flag in aiding the transit of its contents. In the aged, the same result follows from paralytic inertia. Another retarding element is frequently met with in women during pregnancy, in the enlargement of the uterus. Pressure on the gut by abdominal tumors should not be forgotten in assigning an origin to fæcal retention. Here, however, we encroach upon the graver state of mechanical obstruction, a state practically distinct from that of simple constipation, and, therefore, outside of the scope of these remarks.

Depending on many causes, constipation is apt to show a like uncertain and insidious character in its onset, development, and end. One is often self-deceived in it, and not uncommonly the bowel is believed to act regularly, when its presumed regularity has reference only to time, if indeed to that, while the amount of excretion is always too meagre to give adequate relief to organs which may be amply supplied with daily food. Every practitioner has been astonished to note to what an extent the accumulation is sometimes allowed to proceed. The sacculated structure of the greater bowel favors the lodgment of excreta, its power of distention allows the stowage and gradual absorption of the gases contained in it; and thus there may, for a long time, be no great discomfort and no absolute blockage to call for immediate measures of relief. The cæcum and left colon are particularly apt to be the seats of fæcal impaction, when this event occurs. We must thus explain many cases of typhlitis with iliac abscess; and these are but extreme examples of the irritative inflammation in the gut and its surroundings, which is frequently the first grave symptom in a history of costiveness. Some forms of general chronic peritonitis, such as one occasionally finds to be associated with no very clear details of past abdominal disease, may also have arisen in this way.

Another and somewhat different kind of diseased action may follow fæcal irritation. It is seen in the convulsive seizures of children from retention of scybala, and in the anæmic neuroses of girls and women, whose languid and sedentary habits induce a similar condition. How much to assign to cause or effect in the case of the latter may be open to question, but the benefit which is gained by the action of purgatives in arresting the general nervous irritability is not without its meaning. It illustrates the arrest of weak and fruitless reflex action by the removal of a peripheral source of annoyance. Nature herself, by setting up an irritative and slight diarrhœa, exemplifies a method by which the harassed nervous centres often find relief. This reflex secretion, gentle, gradual, and usually insufficient, has puzzled many in making a first diagnosis between the two opposite states of excretion, which are for the time being acting together in a disguised relationship. It affords also a valuable suggestion as to treatment in difficult cases. In any ordinary case of constipation without urgent symptoms, the physician naturally has recourse to

aperients. He may choose a drastic purge or the gentle enema. He follows an old and trite rule in so doing, one of common experience rather than of the medical art. When, however, he has to deal with a resultant inflammation as well as a probable mass of excreta, his views are apt to change. He betakes himself to opiates, considering, not without reason, that the effect has outgrown its origin, and alone requires attention. There are extreme cases where such treatment is sound; but we have known others in which it has been prematurely adopted, to the total exclusion of that other principle of gradual relaxation and detachment, which we have shown to be one of the expedients of nature. On the other hand, the progress of recovery even from states of acute local and general disturbance, has often been observed to tally with the use of the blander aperient remedies, such as salines or enemata in combination with sedatives, preferably those, like belladonna or hyoscyamus, which are at the same time aids to intestinal excretion. Iliac abscess would probably be less common if such means of cure were now and then allowed to encroach upon the purely narcotic treatment. To avert the worse consequences of constipation, therefore, it is commonly necessary to pursue, though with adequate modification, a line of treatment not dissimilar to that which acts, along with consideration for the cause, in correcting the costive tendency itself.—*British Medical Journal*, April 18, 1885.

THE TREATMENT OF PYURIA.

In the treatment of pyuria much will of course depend on the site of the disease and acuteness of its course, and the elaborate analysis of Dr. Ultzmann's monograph on this subject, published in the *Medical Chronicle*, May, 1885, by Dr. Wilkinson, calls attention to many points which are well worthy of notice. In the first place, anterior catarrhal urethritis of non-specific origin calls for little treatment beyond cleanliness and mild astringent injections; but with gonorrhœa it is quite otherwise. In dealing with the treatment of the acute stage of this disease rigid stress should be laid upon rest and regulation of diet, and if the patient is obliged to go about he should use proper support, especially during the third or fourth week, when the disease is extending to the bulb. Among foods vegetables may be allowed and meat in moderation, but all stimulants should be avoided. Dr. Ultzmann has very little faith in copaiba, cubebs, and similar drugs, holding them to be useless in small doses and dangerous in large. In the early stage cold compresses often give relief, and the canal may be frequently cleansed by injections of one per cent. solution of carbolic acid. As the sensitiveness of the urethra diminishes astringents may be employed, commencing with a dilute solution of sulphate of zinc, alum, and carbolic acid,—*e.g.*, three-fourths grain of each to the ounce,—or some permanganate of potassium. The patient should, if possible, pass water just beforehand, in order to clear the canal, and the liquid should be kept in by occluding the orifice for a few minutes after injection. It is better to avoid such combinations as produce precipitates,—*e.g.*, sulphate of zinc and acetate of lead,—as the solid particles may close the gland-ducts and lead to follicular abscess. The catheter should not be used except for retention of urine, as it is apt to drive the disease onwards to the bladder.

In gonorrhœa the discharge may cease, though thread-like portions of secretion are washed out in the first half of the urine, and then strictures of large calibre will probably be found. If so, firm metal sounds, but slightly conical, should be regularly passed until the hardness be removed. Many severe strictures might be prevented if thus subjected to pressure in their infancy. Chronic gonorrhœa will often require no further attention. If, however, astringents are necessary, they may be used directly after the use of the glycerined catheter. The weaker solutions are best applied slowly, by means of a syringe through a No. 6 catheter passed as far as the bulb. The injection is usually painless and may be practised once a day, solutions twice the strength of those already referred to being employed. A considerable quantity of the solution should be introduced. If stronger applications are necessary,—*e.g.*, lunar caustic, 1 in 20,—they must be more localized, and the patient should lie down during and after the process. Dr. Ultzmann recommends a brush passed through a hollow No. 12 tube which allows rotation, and hence active medication at any point of the canal. It will cause some smarting, and should not be applied too often. Ointments placed on the ends of bougies he discountenances altogether, but speaks more favorably of medicated cacao-butter suppositories. The longer ones can be used by the patient himself; the shorter ones, for the bulb, must be introduced

through a hollow tube provided with a suitable stilette. They may contain tannin, sulphate of zinc, or alum. After their insertion the patient must refrain from micturition for at least half an hour, and lie in bed or keep the penis bandaged to the abdominal wall. Tedious cases are sometimes benefited by the application of powdered alum or tannin, mixed with sugar, and blown in through a tube.

In chronic posterior urethritis local treatment is of first importance, but it must be remembered in syringing the urethra that unless the eye of the catheter pass beyond the compressor urethræ the liquid will simply return alongside the instrument to the meatus. Once beyond the muscle in question, the liquid easily forces the sphincter and enters the bladder. The treatment of posterior urethritis by dilute astringent injections involves, therefore, irrigation of the bladder. The urethra will not, however, get the benefit of the treatment unless care be taken that the catheter stops short of the bladder. The instrument (No. 7) should have four side-slits near the point, and be attached by elastic tubing to a syringe capable of containing four to six ounces. Unless there is atony of the bladder the patient may lie down. As soon as the catheter enters the membranous portion it makes an angle of 30° with the vertical. This is the signal to stop. Most, however, not given to calculating angles, will prefer to rely on the sensation experienced in passing the compressor or on local examination. The liquid now ejected will distend the posterior urethra and then enter the bladder. Several syringefuls may be employed. At the close the catheter is passed into the bladder and the organ emptied. He recommends warm solutions of carbolic acid (1 in 500), nitrate of silver (⅛ to 1 in 500), permanganate of potassium (2 to 10 in 10,000), or a combination of alum, sulphate of zinc, and carbolic acid (of each ½ to 1 in 500). In cases of posterior urethritis following onanism or venereal excess, and accompanied by spermatorrhœa, he prefers more potent remedies,—*e.g.*, five per cent. solution of nitrate of silver. This is injected by a hypodermic (Pravaz) syringe through a silver sound perforated by a capillary tube. By this one drop or more of the liquid can be discharged at the exact spot, and the application repeated every other day if required. Stronger solutions produce hemorrhage. This treatment is also of service in gonorrhœa. Similar results may be produced by the use of large, mild, or small caustic cacao-butter suppositories.

In the treatment of cystitis, first endeavor to find the cause. Regard cold as a convenient plea of ignorance, and do not lay hold of and accuse the little bacteria when a much more formidable foe is to blame. In other words, if a stone, new growth, or other condition calling for surgical interference be present, act accordingly.

In acute vesical catarrh, rest in bed is a necessity; rise of temperature may be combated by quinine, pain by local fomentations, and, if it specially affect the rectum and perineum, a few leeches in the latter region will give relief. Warm demulcent drinks may be allowed, and, if the *besoin d'uriner* be urgent, narcotics by the mouth or rectum are called for. Dr. Ultzmann gives 2 or 3 grains of lupuline, with ⅛ grain of morphine, three or four times a day, or morphine suppositories. We think he decidedly underrates the value of henbane and belladonna. If suppositories are not well borne, the bladder may be washed out with warm water containing ten or fifteen drops of laudanum. Mineral-waters are better avoided till the pain disappears. Soda-water and milk and decoctions of uva ursi, etc., may be then employed. Warm baths will comfort the patient and aid micturition. If retention occur, a soft catheter should be employed.

The treatment of chronic cystitis is chiefly local, and consists in efficiently washing out the bladder, with the after-employment of antiseptic or astringent solutions. We entirely agree with Dr. Ultzmann in recommending the use of a soft catheter; in most cases a simple india-rubber tube will pass without difficulty. The mouth-piece of any ordinary syringe is at once firmly grasped by the tube, and by nipping the latter the liquid can be retained or the syringe refilled without any trouble. It is, moreover, much less irritating than a more solid instrument, and in the intervals can be kept immersed in an antiseptic fluid. The patient should stand during the process if possible, as in that position the sediment is most readily evacuated. After micturition the catheter is passed. Any urine left behind will indicate the absence of proper tone in the bladder. Several ounces of lukewarm water are now injected and the catheter is withdrawn a little, so that the end is brought to the neck of the bladder. On now opening it the organ is completely emptied. The injections should be continued until the returning liquid is quite clear. Then

the astringent or antiseptic lotion may be employed and retained a few moments by nipping the catheter. He advocates one-eighth to one-quarter per cent. solutions of carbolic acid, 3 parts in 1000 of salicylic acid, as less irritating than salicylate of sodium, and if the secretion be very viscid, sulphate or chloride of sodium and borax. We think he might have added to the above a solution of boracic acid, or, which we prefer, one containing three grains of sulphate of quinine to the ounce. In atony of the bladder, or in hemorrhage, cold injections are recommended. As astringents in obstinate cases he uses 1 to 3 per 1000 of potassium permanganate, one to five per cent. of alum, 2 to 10 per 1000 of zinc. chlorid., and 1 to 5 per 1000 of nitrate of silver; in hemorrhage, one-half to one per cent. of nitrate of silver, and one-half to two per cent. of perchloride of iron or tannin. In sanious cystitis, to remove the smell, he employs three to five per cent. of resorcine, or adds one or two drops of nitrite of amyl to every three ounces of water. He contrasts the soft catheter mentioned above very favorably with the usual double metallic catheter. In the latter case the contracted bladder does not allow the liquid to enter it, the folds are left unwashed, and if, after the instrument is withdrawn, the organ is washed out as above, the returning liquid will be found to contain much vesical secretion. Compared with irrigation, also, he gives it the palm.

We cannot dwell on the treatment of pyelitis, as so much has been said on other topics. We note that he recommends milk diet, warm baths, alum and whey, tannin, tannate of quinine, copaiba, and turpentine. The last may be given by inhalations repeated several times a day, stopping short of vertigo and other head-troubles. In renal calculi sometimes remarkably good results follow appropriate treatment if the concretion be uratic. Carbonate of lithium may be taken in 7-grain doses three times a day, or a mixture of phosphate of sodium, bicarbonate of sodium, and carbonate of lithium, twice a day. Dr. Ultzmann seems hardly to insist sufficiently on the importance of keeping the urine continuously alkaline. Without having recourse to lithium, citrate of potassium, as recommended by Dr. William Roberts, if taken in 40- or 60-grain doses, at regular intervals, four or five times in the twenty-four hours, will effect all that is required. The drug, as he has observed, is almost as innocuous as sugar.—*Med. Chron.*, May, 1885.

SPONGE AS A POULTICE-CARRIER.

Dr. Richardson calls attention to the much-overlooked value of sponge as a poultice-carrier, especially for mustard. After the mustard-paste has been made of a smooth and even consistency, it should be taken up on a clean sponge, the sponge laid in the centre of a soft white cloth, the corners of which are tied, and the smooth convex side of the sponge is then applied to the surface of the skin. The mustard-sponge, warmed again by the fire and slightly moistened, can be applied two or three times, and remains useful for several hours. The sponge can afterwards be easily cleaned in warm water.—*Pharm. Journ. and Trans.*, May 2, 1885.

COCAINE IN VENEREAL AND SYPHILITIC DISORDERS.

The experience of Bono with cocaine in affections of the genital system (as published by the *Gazz. delle Cliniche*, i., 1885) can be conveniently epitomized as follows:

1. An injection of a few drops of a two per cent. solution of cocaine removes promptly the pains felt in acute gonorrhœa during micturition and erection. The injection has to remain in the urethra for at least five minutes, and to be repeated four to five times daily.

2. This cocaine-injection is unrivalled in rendering caustic injections or the introduction of the catheter painless.

3. The burning pains of blennorrhœa in women yield invariably to small cotton tampons saturated with a two per cent. solution of cocaine, or to the application of a five per cent. cocaine ointment.

4. Cocaine facilitates the examination of urethra and bladder with the bougie and the endoscope.

5. It allows of a painless cauterization in balanoprostatitis.

6. Pointed condylomatæ can be painlessly cauterized, excised, or scraped out with its aid.

7. In cauterization and excision of primary syphilitic affections, cocaine evinced very desirable analgesic virtues of a sufficiently long duration.

8. Taken internally during an antisyphilitic treatment, cocaine did not present any appreciable effects.

9. Its local effects are highly beneficent in syphilitic tonsillitis and in stomatitis mercurialis, and difficulties of deglutition.

Bono refers also to its analgesic properties

in acute painful eczema, pruritus vulvæ, sore nipples, and burns.

As Bono's observations were confirmed by Blumenfeld, Fränkel, Pick, and Neisser, they are entitled to attention and confidence.

ANTIPYRINE IN PUERPERAL PYREXIA.

Dr. Ellis T. Davis reports a case of puerperal fever in which the use of antipyrine was followed by the most successful results (*Medical Press*, May 6, 1885). After delivery the case progressed quite favorably until the evening of the third day, when the breasts began to fill, and the patient felt chilly and complained of pain in the back and abdomen. The pulse was 120 per minute, and temperature 102° F. The next day the condition was much worse: the abdomen more distended and more tender to the touch; the flow of milk considerably lessened and the lochia scanty and putrid, the pulse then being 120, but the temperature had gone up to 103.4° F. Twenty grains of the sulphate of quinine were then given in one dose, to be followed up by one grain of the sulphate of quinine, half a drachm of fluid extract of ergot, and three drops of strychnine solution (B. P.), every four hours. Hot linseed- and mustard-plasters were applied to the abdomen, and a vaginal douche of hot water and Condy's fluid employed. The patient's condition becoming worse towards evening, it was decided to make a thorough exploration of the uterus under chloroform, apprehending that there might be some bits of placenta or membrane retained. The cervix was found to be unusually soft and its canal patulous, easily admitting three or four fingers in the uterine cavity, which was dilated and globular in shape, with softened walls. Some round masses of what appeared to be bits of placenta were scraped away from the uterine walls, and the uterine cavity was well washed out with a solution of Condy's fluid. During the night the patient had a severe rigor, and on the following morning was much worse, her pulse being 150 and temperature 104°, the abdomen very distended and painful to the touch, and vomiting had set in. As another 20-grain dose of quinine entirely failed to produce any improvement, 30 grains of antipyrine, dissolved in an ounce of brandy and warmed with boiling water, were administered by the rectum. In one hour the dose was repeated, and in another hour half a dose. At this time the temperature fell abruptly to 101° F. The pulse grew slower and fuller; profuse diaphoresis set in, and the patient fell into a comfortable doze. The uterine cavity was wiped out with cotton-wool soaked in tincture of iodine, and a plug soaked in glycerin and smeared with powdered iodoform was placed in the vagina. During the day the dose of antipyrine had been twice repeated, but the reduction of temperature had been simply transient and vomiting had persisted, and in the evening her condition was about as it had been before. Three doses of antipyrine were accordingly given at intervals of an hour; the temperature fell to 100.6° F., profuse diaphoresis set in, and the patient fell asleep. After this date the patient made rapid improvement and complete recovery. The details of the history of the case afford no further points of importance.

OXALIC ETHER.

Oxalic ether ($C_6H_{10}O_4$) is a colorless liquid, sp. gr. 1.090, boiling at 183° C., having a pleasant odor, but a decidedly biting taste. It dissolves readily in alcohol and in ethylic ether; it is also soluble in water to the extent of four per cent., but after a time water decomposes it, alcohol and oxalic acid being formed. Potash and soda solutions convert it into alcohol and oxalates of the bases, whilst ammonia solution converts it into alcohol and oxamide. When administered hypodermically oxalic ether is decomposed at the point where it is introduced and acts there perhaps exclusively, the action being to coagulate the albuminoid structures, and to produce almost painlessly a free and dry eschar without marked constitutional disturbance, unless used in excess. Dr. Richardson looks upon oxalic ether as a destroyer of tissue rather than a caustic, and believes it will prove of service in application either by the brush or by needle injection for the removal of morbid vascular growths. It is prepared by the action of oxalic acid upon absolute alcohol.—*Pharm. Journ. and Trans.*, May 2, 1885.

PERMANGANATE OF POTASSIUM IN AMENORRHŒA.

Dr. A. H. Bampton, writing to the *British Medical Journal* for April 25, 1885, recommends unguentum resinæ as a convenient and suitable excipient for permanganate of potassium when ordered in pill-form, whilst kaolin is difficult to manipulate, and of a stony hardness when made up and dried.

Reviews.

A System of Practical Medicine by American Authors. Edited by William Pepper, M.D., LL.D. Philadelphia: H. C. Lea's Son & Co., 1885.

The profession has now before it the first volume of the long-expected "System of Practical Medicine by American Authors." This first volume embraces the departments of General Pathology, Sanitary Science, and General Diseases. Its perusal will, we think, bring no disappointment, nor will it cause the most sensitively patriotic practitioner to blush even in secret for the fame of his land. The authors of the various articles are generally well known, are selected for their special fitness for writing on their assigned subjects, and have generally written in good, clear, readable style, by no means diffuse: giving promise that the series, as a whole, will contain much valuable matter and but little padding.

The section on General Pathology and Sanitary Science contains articles on "General Morbid Processes," by Reginald H. Fritz, M.D.; "General Etiology, Medical Diagnosis, and Prognosis," by Henry Hartshorne, M.D., LL.D.; "Hygiene," by John S. Billings, A.M., M.D., LL.D. Edin.; and "Drainage and Sewerage in their Hygienic Relations," by George E. Waring, Jr., M. Inst. C.E. The articles on General Pathology, Etiology, Symptomatology, and Diagnosis are extended and thorough.

Dr. Hartshorne's article contains an exhaustive discussion in a free and fair spirit of the various questions connected with the subject of germs in their relations to disease. He has collected in his General Diagnosis and Prognosis the "good and bad signs" in disease, and sets before the reader what may be considered as the condensed observation and experience of the profession from past centuries to the present time.

Dr. Billings, in his highly interesting article on Hygiene, writes with the purpose of indicating "some of the ways in which hygiene, both private and public, is connected with the duties of the general practitioner, and to give some information as to modern methods of investigation and work in preventive medicine." He treats his subject under the headings of "Causes of Disease, Means of Discovery, and Prevention," including heredity and the subject of marriages, impure air (under which the subject of ventilation is discussed), and special impurities; no mention being made, however, of certain recent researches concerning the effect of burning gas and carbonic oxide. "Impure Water: Its Method of Determination and Analyses, with its Evil Consequences." "Climate, and the Subject of Malaria, Habitations, Subsoil Water, and House Location and Construction, with Drainage, House-Inspection, Trapping." "Occupation, Food, Intemperance, Clothing, Exercise, Contagion and Disinfection, and Mental Causes of Disease." Section second, "Personal Hygiene in its Relation to the Practice of Medicine." Third, "Public Hygiene in its Relations to Physicians," under which head we are glad to see a clear statement of the arguments for and against compulsory notification of diseases. He alludes to the "fact that it is unjust for the State to compel the service of any man or class of men without furnishing compensation," though this by no means covers all the ground of the opposition to such notification. The registration of births, he states, "stands on a very different basis from requiring him to report the cause of death." Taken as a whole, the article is excellent, and can be used as a practical guide by the medical man at all times, serving to extricate him from the many difficulties which often surround him.

The American reader, professional and lay, has so grown to regard the authority of Colonel George E. Waring as paramount to all others in matters of drainage and sewerage that his selection to write upon the subject is a peculiarly happy one. The article, too, is written in a manner most helpful to the physician, and a mastery of its contents will prove invaluable, not only in leading us to make right suggestions as to sanitary arrangements of the homes of our patients, but in staying our hands at other times and causing us to avoid the mistake of becoming doctors of plumbing rather than doctors of medicine.

In comparing the article of Dr. Billings with that of Colonel Waring one sees at once the differences of opinion between two writers on much the same ground. Thus, in regard to trapping, Dr. Billings suggests as the first thing necessary a trap outside the house system, while Colonel Waring rather advises the removal of such traps unless, he adds, "the sewer be more than usually foul," in order not to check the current of air and render flushing more unimpeded. When questions are undecided, it is by no means disadvantageous to possess the views of antagonistic believers. So far as Philadelphia is concerned, however, we are in no doubt, our sewers being most unmistakably foul. Colonel Waring, however, is writing for cities and

towns in general, with no reference to any particular application.

The section on General Diseases opens with an article on Simple Continued Fever by Dr. James H. Hutchinson, followed by articles on Typhoid and Typhus Fevers by the same able writer. In regard to the much vexed question as to whether there be a simple continued fever, Dr. Hutchinson says, "it may, therefore, be safely assumed that there is." The three articles together form an epitome of all known on the subject, and are written in a pleasing style with great care. The article on typhoid fever is especially important as containing a thorough discussion of questions of such vital importance as its causation and mode of infection.

Dr. Pepper writes the article on Relapsing Fever, and brings to the work a personal knowledge of the disease which enables him to make a thoroughly exhaustive treatment of the subject. Dr. James Nevins Hyde is the author of the chapters on Variola and Varicella. Dr. Frank P. Foster, of that upon Vaccinia. Dr. Foster is strong in his belief of the independent existence of vaccinia, though admitting that this point cannot at present be absolutely proved. Taking the experiment of Chauveau as incontrovertible, he considers smallpox and vaccinia "as wholly distinct from each other under all circumstances." The horsepox theory he believes to be "as yet not disproved," but most rational of all is a belief that vaccinia is distinct both from smallpox and horsepox. He gives a full and very useful description of vaccinia in the cow, and of raspberry-pock and other varioli in the human subject, and while a firm believer in the efficacy of vaccination, he is by no means unconscious of the thread of truth in the arguments of its opponents. "One of the most injurious statements ever made in the advocacy of vaccination," he says, "is that it always protects if properly done," and he acknowledges such a thing as a "conscientious and intelligent doubter." He recommends revaccination every five or six years, and always in the presence of an epidemic. The questions of the complications and sequelæ of the operation are freely argued; in regard to vaccinal erysipelas he says, "genuine erysipelas following vaccination is quite rare, but is prone to prove serious." He believes that it "always depends on secondary infection," as in any traumatic surface he admits that improper virus is apt to give rise to dangerous inflammation, but claims this is not erysipelas. Subsequently he says that erysipelas has never been transmitted by the virus. The transmission of syphilis he admits at once.

The article on Scarlet Fever is by Dr. J. Lewis Smith, those on Rubeola and Rötheln by Dr. W. A. Hardaway, Malarial Fevers by Dr. Samuel M. Bemis, Parotitis by Dr. John M. Keating, Erysipelas by Dr. James Nevins Hyde. Dr. Bemis also writes on Yellow Fever a comparatively short article: no space is devoted to the perplexing questions of quarantine or prevention. The author believes it to be a "specific, infectious, and communicable disease." His estimate of its mortality is lower than that of many observers. The article written by one with the author's opportunities is necessarily practical and of great value.

Perhaps if asked to name the most satisfactory chapter in the book, most would select Dr. Jacobi's upon Diphtheria. It appeals more than any other to the distressed and disheartened practitioner, who cannot escape the feeling that recoveries should be more frequent from the disorder. It is a good article for the discouraged. Dr. Jacobi is a calm and self-reliant guide; his tone is hopeful without optimism. He discriminates more closely than most writers as to the varieties of diphtheria, and as to the special treatment best suited for each variety. Among the multitude of remedies advocated, he gives us some guidance in selection to meet special conditions. He endeavors to break up the habit of prescribing for the name of the disorder; he does not consider nasal cases as by any means hopeless, but thinks the most of them can be saved in the way he advises. He urges the frequent administration of tinct. ferri chloridi in large doses every fifteen minutes before giving it up as useless. He believes in the mercurial treatment in no half-hearted way, using the oleate to produce the most rapid impression possible. We think that his article, if estimated at its true value to the practitioner, would make the possession of the book for it alone an excellent investment, for it formulates the knowledge we all perhaps possess in a somewhat chaotic state more definitely than ever before.

Dr. Stillé has, as might be expected, written a very exhaustive monograph on Cholera. Its history is given in detail,—its pathology, its etiology, its symptoms, and treatment. The article is brought up to date, and the comma bacilli are discussed in the calm and judicial spirit of the writer, leaving the matter—where, despite all the false glamour of enthusiastic partisans, it still remains—unsettled. The author acknowledges that it meets the require-

ments of a cause of cholera in many particulars. The thing wanted theoretically he describes as "a specific poison, which originates in Hindostan, and, being taken into the stomach and bowels, not only produces in the individual the symptoms and lesions of cholera, but is capable of multiplying itself and rendering infectious the discharges from the stomach and bowels, so that it may be transmitted from one person to another round the whole circumference of the globe." The discovery of the bacillus harmonizes "with a long-prevalent opinion that the cholera-poison consists of certain microscopic germs." Whether the bacillus is to be regarded as cause or effect has evidently not, in the author's opinion, been so settled as to become a fact.

The author's arraignment of quarantine is powerful, and shows the justifiable indignation with which the honest professional mind regards the subterfuges of commerce. The outline of methods of treatment that have failed about fills up the article, so that in the advent of the scourge we seem about where we were, except that we have the bacillus, which the homœopath perhaps may attenuate, but which seems useless to us. We fail to find any mention of atropine as of use in collapse, and the hypodermic method generally is represented as laboring in cholera, along with all other methods, under the disadvantage of a total want of absorption and a circulation almost at a standstill. Early in the disease, opium the author considers our main reliance, and in the algid stage he has evident yearnings towards cold affusions.

Dr. J. C. Wilson writes the article on Plague; Dr. James C. White, that on Leprosy; Dr. Stillé, that on Epidemic Cerebro-Spinal Meningitis; Dr. John M. Keating, that on Pertussis.

Dr. J. C. Wilson, as author of the article on Influenza, will at once command the attention of those who have read the chapter on the same subject in his "Continued Fevers of the Middle States." Causing, as influenza does, directly or indirectly, the principal winter sickness in our larger sea-board cities, it is worthy of closer study than it receives. We believe its importance as a factor in disease is still generally underestimated by the profession. Its presence or its absence undoubtedly makes the difference between a sickly and a healthy winter. Its easy confusion in the popular mind with "slight cold" leads too often to grave consequences. We think Dr. Wilson, while covering the ground in almost every particular with great fulness, has failed to develop in his article any treatment of value beyond that of mere expectancy. He ignores the free use of alkalies, and condemns antimonials, though in small doses their good effects seem to many very marked in shortening the attack. Certainly any safe means of promoting early diaphoresis will give relief to the fever and excessive pains, so often met with, far earlier than a treatment by demulcents and time.

Dengue, by Dr. H. D. Schmidt, is a short article. No mention is made of the epidemic of 1880, in its extension along the Atlantic coast of the Middle States. Many well-marked cases appeared as far north as New York. The author, however, thinks that its last epidemic appearance in the Middle States was some time in the last century.

James Law, F.R.C.V.S., contributes the three following articles on Rabies and Hydrophobia, Glanders and Farcy, and Anthrax; Dr. B. A. Watson, that upon Pyæmia and Septicæmia; Dr. William T. Lusk, that upon Puerperal Fever; while Dr. Duane B. Simmons concludes the volume with Beri-Beri.

Dr. Law's articles are written from a veterinary stand-point, and will prove more valuable in consequence. The articles on puerperal fever and pyæmia and septicæmia add a fulness to the plan of the work which will be appreciated by the general practitioner.

Taken throughout, we fail to see how this volume could be improved. Its standard, if maintained, will make the series invaluable, and superior for practical use to anything of the kind within reach of the medical world.

E. W. W.

COMPARATIVE PHYSIOLOGY AND PSYCHOLOGY. A DISCUSSION OF THE EVOLUTION AND RELATIONS OF THE MIND AND BODY OF MAN AND ANIMALS. By S. V. Clevenger, M.D.

Chicago: Jansen, McClurg & Co., 1885.

To review a book like the present thoroughly is a matter of some difficulty, because such review presupposes the ability to completely understand the book, an ability which is given to few mortals. Perhaps, however, we will be able to give our readers some idea of its scope. The following sentence from page 8 probably condenses in a few words what may be known as the *motif* of the work:

"The survival of any animal is evidence of its consonance with its surroundings, and the environment not only modifies and acts upon the animal to develop or destroy it, but also, from our chemical stand-point, originates it."

It will be seen that the author challenges

both religion and modern science in this sentence, for if there be anything which is remarkable in science, it is the utter failure of all efforts to prove the possibility of spontaneous generation and the well-settled conviction of most earnest evolutionists that at present we must consider spontaneous generation as a myth. The basal idea of the present work is therefore that chemical relations or reactions originate all life, and are the beginning and the ending of all material and immaterial things and forces.

The author says, on page 3, "I will not grant an unknowable, for to set limits upon what may be disclosed to us in the future argues a knowledge of where science will always fail which no one possesses." To our thinking, there is an absolute limit to human thought, beyond which it is impossible that even the greatest minds can travel. Of the ultimate nature of things we have no more knowledge than had our ancestors before the dawn of our modern scientific day. We do not seem, as the years go by, to come one whit nearer what may be considered the utterly unknowable, the essence of all things. Why stone is stone, and why white is white; where we came from, and whither we go;—these questions are, so far as knowledge distinguished from faith is concerned, as unanswered and as unanswerable as they were in the days when they were discussed by Socrates in the groves of Greece.

There are contained in the book of Dr. Clevenger fifteen chapters, with the following titles: Introduction; Primitive Life and Mind; Organogeny; Genesis; Development; Physics of the Cerebro-Spinal Nervous System; Physics of the Sympathetic Nervous System; Physics of the Nerve-Cells; Physics and Chemistry of the Nervous System; Mental Physics; Morphology, Histology, and Evolution of the Human Brain; Primary Activities; Derived Activities, mainly the Emotions and their Expression; Derived Activities, mainly Mental; The Law of Expediency and Optimistic Conclusion.

The first of these chapters is largely devoted to the discussion of the amœba and of certain rhizopods, and seems to have for its object the showing that all of the highest powers of the highest animals are to be found in the amœba. The metaphysics of man is a sufficiently difficult subject for comprehension and discussion, but when it comes to the metaphysics of the amœba the difficulties become titanic. To show how they are increased by the obscurities of the author's style we quote the following paragraph as a fair average specimen of the whole book:

"The sensations involved in assimilation would be difficult to separate from those concerned in pseudopodia protrusion or general locomotion, as they are identical in effect in the amœba. Admitting this identity, it is easy to see how by invagination of the ectoderm the later differentiation could occur by an enteric tactile developing in one direction, while the ectodermal would change with direct reference to locomotion or prehension."

In the first sentence we suppose that Dr. Clevenger has used the conjunction "as" instead of "with which": "as" has no such meaning in the English language, and we may therefore be astray in our surmise. Much study, however, only brings us to the conclusion that the sentence strictly construed has no meaning, and therefore every reader may interpret it as he pleases.

In the second sentence we guess by the term "later differentiation," is meant the development of new organs. If this surmise be correct, it is seen how the introduction of three or four words after differentiation would have saved much rereading and labor on the part of the person who was groping after the author's ideas.

If a book like the present is to be read at all, it is essential that it be made as clear as the obscurities of the subject will allow. As was pointed out by Herbert Spencer, the true object of all literary style is to reduce to the minimum the effort upon the part of the reader. When this is so far forgotten that every sentence has to be studied and restudied, in a book, too, which contains no great new truths, but is merely an exposition of the thought of others, the author may assure himself that his work will soon pass to the limbo of the forgotten. According to our thought, the only way in which a book covering the ground that the present one does could be so prepared as to be read by the general mass, even of scientific readers, is by placing in the front of each chapter a succinct, clear idea of the object for which the chapter is written, or putting at the end of each chapter a carefully formulated proposition which has been established.

We greatly fear that because we have not been favorably impressed with the work before us our author will conceive us to be not a denizen of the great West, but one of the unfortunate inhabitants of Eastern towns, whom he seems to look upon with an aggressive hostility akin to wounded vanity.

"A Chicago writer dislikes to credit any one in Arkansas with a good thought; a New York or a Boston man cannot conceive of Chicago originating anything; and across the sea the general run of scientists avoid any mention of America or its workers, if possible,"—which, as a general statement, is certainly incorrect; and whatever of truth there may be in it arises from the fact that the huge journalistic flood which curses this country carries on its bosom an enormous mass of matter as barren of freshness as is Arctic driftwood; and when a man has, time and again, searched over an immense amount of drift to find but a single particle of value he begins to tire of the process, and concludes that it is cheaper to let the whole rot than to separate the good with so much labor.

The artistic sense in our author seems not to have suffered high development, and in this perhaps he is a typical American, for it is only of the later times that we are beginning to grow the artistic sense upon the cold Anglo-Saxon foundation. "The artist, by his judicious accessories, makes the beholder think he sees maternal love in the mother's face as she bends over her infant; but wipe out the cradle and its contents from the picture and substitute a poodle or something good to eat, and the expression will fit the change as well," probably to Dr. Clevenger's eyes.

The cynicism of our author is also quite marked, leading him to generalize beyond what the facts of the case fairly warrant. It may be true that "He who rides in a carriage has an involuntary contempt for him who goes on foot," and that "An unscrupulous capitalist is merely a hypertrophied intestine:" but it is not true that the man who attempts to live a Christian life is to be put upon the same plane as the "social sharks, foxes, and tape-worms;" or that he works from no higher motive than does "the robber."

Perhaps the strangest thing in this strange book, this medley of unconnected and unreadable thinking, is the author's lack of appreciation of his own thoughts and his own writings. As already stated, the foundation which he lays in the beginning upon which to build his argument is that there is no such thing as the *unknowable*, whereas the end which the whole argument carries him to is that "*Agnosticism*, which is the wise refraining from questions which we cannot settle, *is our refuge*." Assuredly a little scientific humility would become one whose thinking is so chaotic. The scientist complains with justice that since the days when Calvin burned Servetus at the stake the theologian has but too often repeated in a milder type this act of persecution; but, assuredly, mankind has a right to claim that some respect should be paid to opinions upon which are based not only the happiness of millions, but also the social order and progress of modern civilization.

We cannot sympathize with that active hostility to religion in the scientific worker which leads him to be the aggressor. Let science work its way, and let religious teaching pursue its path; dealing with different provinces and founded upon different methods, they should dwell together in peace.

THE PHYSICIAN HIMSELF, AND WHAT HE SHOULD ADD TO HIS SCIENTIFIC ACQUIREMENTS IN ORDER TO SECURE SUCCESS. By D. W. Cathell, M.D. Fourth Edition. Enlarged by the addition of nearly three hundred new suggestions.

Baltimore: Cushings & Bailey, 1885.

Were every physician to read "The Physician Himself," and realize the glowing expectations of the original prospectus, we do not see how the sphere of practice would be materially enlarged, or how any special epidemic would thereby be originated for his benefit. Possibly the men who have succeeded already, rather in ignorance than in defiance of its worldly-wise precepts, might have to yield a little of their success to their more recently-educated brethren. But surely, as the author acknowledges the ease with which a once acquired practice is held, a hasty perusal of the book would be sufficient to entirely re-establish them in public favor. Possibly, since the fourth edition is much enlarged and improved, there may, after a time, be discovered in many communities—especially rural—a slight difference in favor of those who possess the latest edition. Of several men settling in a town at about the same time, one may modestly base his claims on the perusal of the first edition, another on the second, while a third, more acute than his fellows, may secure Dr. Cathell's fourth edition, with its nearly three hundred additional "wise saws," and far outstrip them all. We only allude to this to show the utter necessity of a perusal of "The Physician Himself" in some shape. Degrees, study, general knowledge of one's profession, are as nothing. The self-constituted professor of the "Chair of Success" in the world's university confers a degree for the moderate price of his published volume, which is worth all other quali-

fications together,—a degree which might be written M.D., P.H. Nobody seems yet to have thought of writing "The Physician Not Himself," though he is said to be often preferred in that state in some benighted parts of the country. E. W. W.

THE LONDON MEDICAL STUDENT AND OTHER COMICALITIES. Selected and Compiled by Hugo Erichsen, M.D.

Published by Dr. H. Erichsen, 11 Farmer Street, Detroit, Mich. Price, $2.00.

The editor and compiler of the above advises the removal of shirt-collars before perusing his book, but we can assure every one that the book is a safe book, and causes no damage to the reader or his clothes. The editor has done well in republishing this series of sketches from the pages of *Punch* of fifty years ago, and while our modern American taste for the humorous has been, perhaps, so vitiated by acquaintance with the writings of Mark Twain and other recent American humorists as to lose some of its appreciation, most of us still remember with affectionate delight the story of Bob Sawyer, to whom the "London Medical Student" bears a family resemblance. The inimitable Bob, however, will still, we think, remain the type and model of his class,—an interesting specimen worthy of preservation in these days when students are, as a rule, only too studious, and life quite as real and earnest as it should be. The "other comicalities selected and compiled" are, many of them, old and familiar. They add a strong and yet recent flavor to the book, and had the editor been as careful as the editor of *Punch* in inserting nothing which could shock the family circle, he might have increased the popularity of his book to a very considerable degree.

LECTURES ON DISEASES OF THE NERVOUS SYSTEM, ESPECIALLY IN WOMEN. By S. Weir Mitchell, M.D. Second Edition, revised and enlarged, with five plates.

Philadelphia: Lea Brothers & Co., 1885.

This brochure is well known to the reading portion of the American, and, indeed, of the European, medical profession; and it is hardly necessary for us to comment on the freshness of its material, or upon the originality with which this material is dealt with. It is with much pleasure that we hail the outcoming of the new edition. We note that some of the early lectures have been rewritten, and that the relations of hysteria to organic disease of the joints, spine, and of the rectum have been especially commented upon. Few persons can peruse this volume without feeling that their knowledge of the curious phenomena manifested by hysterical and neuræsthenic women has been greatly enlarged, and that their power over this group of cases is still more largely increased. Rising from the perusal of this book, and from one of the equally classical treatises of Charcot, the differences in hysteria, as seen in America and in France, are very forcibly impressed upon our minds. These differences, probably, are race-characteristics. Dr. John Guitéras, in his years of practice in Key West, who dealt with many of the Latin race, tells us that he finds numerous cases conforming to the description given by Professor Charcot. The cold-blooded Anglo-Saxon, even in the throes of hysteria, seems not to take on the more impassioned utterances of her Latin sister.

THE INVALID'S TEA-TRAY. By Susan Anna Brown. Boston: James R. Osgood & Co., 1885.

This is a small, very handsomely-designed book, containing a number of recipes for use in the sick-room. The most of these seem to us good, but none of them remarkably novel. We notice a recipe for koumiss which is about as troublesome to carry out as can be conceived, and which must yield a result about as bad as any enemy of sick mankind could wish. Many of the recipes seem to us trivial. Thus, there is one for boiling eggs, as follows: "In boiling eggs for an invalid, put them in cold water. When the water boils they are cooked sufficiently."

It is perfectly plain that, according as the fire was intensely hot or not, the egg, in carrying out this recipe, would be variously cooked. There is no doubt that this little book is capable of being useful, but it is not as elaborate as the larger cook-book for the sick-room of Milner Fothergill.

A GUIDE TO THE DISEASES OF CHILDREN. By James Frederick Goodhart, M.D., F.R.C.P. Revised and edited by Louis Starr, M.D., with Formulæ.

Philadelphia: P. Blakiston, Son & Co., 1012 Walnut Street, 1885.

Thoroughly individual, original, and earnest, the work evidently of a close observer and an independent thinker, this book, though small, as a handbook or compendium is by no means made up of bare outlines or standard facts. Many of the chapters are spirited essays, and cannot fail to impress with a sense of novelty the most omnivorous and hardened reader. The chapter on diphtheria, for instance, is by

no means trite: it contains one of the clearest descriptions of the disease imaginable. The author considers its contagious principle one of low power,—its albuminuria never, in his opinion, leads to dropsy. "Paralysis," he says, —and this is a fair instance of his happy facility, —"is to diphtheria what dropsy is to scarlet fever, a symptom which often leads to the detection of a hitherto unsuspected ailment;" and he notes that while some die of paralysis rapidly and others recover slowly, "between these two extremes there is no mean of permanent paralysis."

"All such affections as diphtheria must now be held to be more or less local at first," is his deduction from the now prevailing germ doctrine. The editor, who disagrees with him, inserts here the statement of Dr. J. Lewis Smith in the same connection.

The author's argument with the advocates of early tracheotomy will be lost, able as it is, on those whose only idea is embraced in the formula "operate early." Throughout the entire book one peculiarity is noticeable: the difficulties of diagnosis are not airily waved aside or treated as things which need only trouble the novice; they are discussed plainly from the stand-point of a man who, while he compels our respect for his ability, finds that ability often at fault; it is the undertone rather than the words, the effect is by no means discouragement. The chapters on glandular disease, acute tuberculosis, tubercular meningitis, seem to us especially noticeable, while the book as a whole is a valuable addition to the literature of the diseases of children. E. W. W.

NEURALGIA AND THE DISEASES THAT RESEMBLE IT. By FRANCIS E. ANSTIE, M.D., London.
New York and London: G. P. Putnam's Sons, the Knickerbocker Press, 1885.

Although the date of this book, as given by the title-page, is 1885, the volume was really written in 1871, not long before the death of its lamented author. The present edition appears to be simply a reprint of the original work, and as this book has been so long before the profession, it would be a waste of space to review it at any length. It is a well-known classic. Unless the eyes of our readers are in a better condition than those of the present writer, they will be very much disposed to repent the buying this edition of Anstie's book (if they do so foolish an act), on account of the smallness and closeness of the type. Evidently the publishers are in league with the oculists: and we make the prophecy that in the ophthalmological journals the review of the book will be most favorable.

REVUE SCIENTIFIQUE.

The following is a summary of the table of contents of the *Revue Scientifique* for the last month:

April 25, 1885:

History of the Sciences.—H. St. Claire Deville, Mineralogist. By M. Hautefeuille.

Military Art.—Infantry Arms. By X.

Physics.—International Electrical Exposition of the Paris Observatory.

Book Notices.—Socialism and Democracy (M. A. Fouillée); Practical Manual of Mental Diseases (M. E. Régis); Animal Magnetism (M. F. Bottey); Annals of the Royal Observatory at Brussels.

Proceedings of the Academy of Sciences of Paris.

Correspondence and New Inventions.

May 2, 1885:

Psychology.—Two Fashionable Poisons: Morphine and Ether. By M. P. Regnard.

Geology.—The Theory of Coral Formations. By M. A. de Lapparent.

Scientific Miscellany.—The Origins of Alchemy, according to M. Berthelot. By M. Louis Olivier.

Statistics.—The Bureau of Statistics. By M. Chervin.

Book Notices.—Revenue Reform in France (Fournier de Flaix); Disorders of Speech (Kussmaul).

Proceedings of the Academy of Sciences of Paris.

Correspondence and New Inventions.

May 9, 1885:

Terrestrial Physics.—The Meridian and Common Time. By M. de Lesseps.

Industrial Arts.—Coal, its Extraction and Uses. By M. Badoureau.

Botany.—The False Truffles in the Neighborhood of Paris. By M. Bougon.

Book Notices.—Zoological Philosophy before Darwin (M. Perrier); Fatty Matters in the Urine (M. Monvenoux).

Proceedings of the Academy of Sciences of Paris.

Correspondence and New Inventions.

May 16, 1885:

Scientific Miscellany.—Paleontology. By M. A. Gaudry.

Scientific History.—Three Physicians of the Sixteenth Century,—Champier, Fuchs, and Michel Servet. By M. H Tollin.

Physiology.—The Normal Temperature of Man. By M. Ch. Richet.

Book Notices. — Contributions from the Physiological Laboratory of the Faculty of Medicine: Alcoholism (Lentz).

Proceedings of the Academy of Sciences of Paris.

Correspondence and New Inventions.

May 23, 1885 :

Terrestrial Physics.—The Origin of Mineral Waters. By M. A. Gautier.

Scientific History.—Three Physicians of the Sixteenth Century,—Champier, Fuchs, and Michel Servet. By M. H. Tollin.

Psychology.—The Extent and Development of Conscience. By M. Wundt.

Zoology.—An Oviparous Mammal ; the Egg of the Ornithorhynchus. By M. E. Trouessart.

Book Notices.—The Elimination of Phosphoric Acid (M. Mairet) ; The Physiology of the Nervous System of Invertebrates (M. Romanes) ; Indian Ethnology (M. Powell).

Proceedings of the Academy of Sciences of Paris.

Correspondence and New Inventions.

Correspondence.

THE LOCAL ACTION OF DRUGS ON BLOOD-VESSELS.

27 Gower Street, London, W.C.
April 30, 1885.

To the Editors of the Therapeutic Gazette.

Gentlemen :—In the April number of the Therapeutic Gazette for this year a leading article, entitled "The Local Action of Drugs on Blood-Vessels," comments upon some experiments with ergotine made by Professor Ringer and myself. These experiments were recorded in the *Brit. Med. Journal* of January 19, 1884. In the comments a source of error is pointed out in the possible alteration in the physical condition of the circulating liquid subsequently to the addition of the ergotine, and the statement is made that "no distinct effect was produced upon the rate of flow till ten per cent. of the extract of ergotine was in solution." The simile is then drawn of the rate of passage of thick molasses and of a thin saline through tubes of uniform calibre.

In answer to these comments, we must state that the possible source of error here referred to was one which had not escaped us. Next, that a very serious error is made in the above statement as to the amount of ergotine in the circulating fluid. A ten per cent. solution of ergotine, indeed, was used, *but of this solution only four parts were taken and diluted with one hundred parts of saline;* hence, in place of having ten per cent. of ergotine in the circulating fluid, the amount was only 4 per 1000. Lastly, admitting that even this amount of ergotine, undoubtedly a large quantity, had seriously altered the physical conditions of the circulating fluid, how will such theory explain the results obtained ? In each experiment with the ten per cent. solution *a primary acceleration of the rate of flow was observed subsequent to the addition of the ergotine.* This primary acceleration did not last long, it is true, but it considerably outlasted the time necessary to fill all the vessels with a fluid which, according to theory, is more viscid. Then, subsequently to the primary acceleration, a decline in the rate of flow appeared, but the characters of this decline must be noted. It is perfectly gradual, and, moreover, it takes place in vessels which are already filled with the more viscid fluid, not in the act of filling these vessels.

We do not see how these two points are to be explained upon the physical theory, viz. :

1st. The fact that the *act of filling* the vessels with a more viscid fluid was not attended by a diminished rate of flow.

2d. The fact that in vessels *already filled* with the altered fluid a gradually diminished rate of circulation was witnessed.

The actual significance of 1st is not clear. This we referred to in our paper, but we think that both 1st and 2d are explicable on the theory of a varying calibre of the vessels, but not on a varying viscosity of the circulating fluid.

I am, gentlemen,
Yours faithfully,
H. Sainsbury.

[The difficulty surrounding the work of Drs. Ringer and Sainsbury is that it is so very discordant with previous observations. Without insisting upon the truth of the objection heretofore raised in the Gazette, the editors certainly think that at present these experiments are inexplicable, except upon the theory that there is some fallacy connected with them.—Eds.]

COCAINE IN THE OPIUM-HABIT.

H. C. Wood, M.D., Editor of the Therapeutic Gazette:

Dear Doctor :—In the May number of the Therapeutic Gazette, page 329, in the article on the Therapeutic Value of Cannabinon, is this paragraph :

"Richter also made some interesting observations with cocaine, and found that injections of cocaine could replace morphine injections without causing morphine hunger. The un-

pleasant effects of the period of abstinence are totally suppressed."

Does he say anything more on that point in the article or elsewhere? I am much interested in anything on the subject of the morphine-habit, since I have a dear friend who I am trying to cure of it. If you can point me to anything on the subject at all new you will much oblige. I have somewhere else seen an allusion to cocaine as being used in the treatment of the habit, but nothing in detail, simply a mention of it.

I congratulate you on the great improvement in the GAZETTE. I would rather be without any or all of the three or four other journals I take than the THERAPEUTIC GAZETTE. May you have abundant success.

S. W. CALDWELL, M.D.

TRENTON, TENNESSEE, May 21, 1885.

[There has been considerable testimony as to the value of cocaine in the treatment of the opium-habit, and I have myself in one very severe case stopped the use of opium at once by exhibiting five or six times a day half an ounce of the fluid extract of the erythroxylon with the result of a most rapid cure, without serious symptoms. Especially did the gastro-intestinal symptoms which are so apt to follow the abrupt treatment of the opium-habit appear to be relieved. Hypodermic injections of cocaine, of course, could be substituted for the exhibition of the erythroxylon by the mouth, and, as much of the erythroxylon of commerce is inert, is more certain. And half a grain of the alkaloidal salt might be given hypodermically every four hours. Possibly it would be wiser to begin with the smaller amount and increase until some effect was induced.—H. C. W.]

CHOLERA VACCINATION.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—While commending all scientific efforts to penetrate the mysterious domain of disease, every thoughtful physician must know that, in the department of etiology, we are in the midst of an epidemic craze.

Not content with searching for a germ as the cause of almost every known disease, and its therapeutic destroyer, the enthusiasts in the race for microbes assign new properties to the creatures when found, and present them as therapeutic agents in entirely unheard-of *rôles*.

The recent claims of some Spanish experimenters in vaccinating (let etymology go to the dogs!) animals and men with "bacillus choleræ" is announced with a flourish of trumpets, and with the comforting assurance that "man tolerates bacillus-vaccination."

Well, and if he does?

The value of this must be determined by the immunity or non-immunity of the "vaccinated" from cholera contagion. Can we reasonably expect immunity?

The value of real vaccination lies not only in the fact that cowpox is essentially smallpox modified, but much more in the fact that a patient having suffered from smallpox is thereby rendered insusceptible to the action of its virus.

Now, if one attack of cholera protected, as does an attack of smallpox, we might reasonably hope for benefit from these experiments. As this is not true, what good can come from this homœopathic *baccilization?*

MORTIMER WILLSON, M.D.

PORT HURON, MICH.

"PHYSIOLOGICAL NOTES."

PHILADELPHIA, May 13, 1885.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—My attention has been called to the April number of your journal, in which you review the little work entitled "Physiological Notes," edited by my friends, Dr. N. A. Randolph and Mr. Samuel G. Dixon. In the above review you are kind enough to state that of "these papers probably the most important is the investigation in regard to the nutritive value of branny foods," etc. Now, if you will be kind enough to turn to the list of contents in the beginning of the said volume, you will notice that no less than four of the contained articles were written by Dr. Randolph in conjunction with myself; also that a distinction is made between the editors and writers.

Very truly yours,

A. G. ROUSSEL, M.D.

Notes and Queries.

DOMESTIC REMEDIES OF THE ARABIAN DESERT.

DR. E. GORDON HULL publishes an interesting paper on this subject in the *British Medical Journal*, April 11, 1885, in which he states that the remedies which the Arabs are in the habit of using are usually derived from the most widely-distributed plants. As a diuretic, which they believe to be indicated whenever they suffer from pain in the back and

gravel, they use the retem (Spartium monospermum), making a decoction of the top shoots in hot water and drinking it. They say that it is also purgative. This shrub, which provides them with fuel, and their camels with a scanty nourishment, is almost universal and has a bitter taste. Several species of wild melon of the family of bryoniæ, allied to the elaterium, are also in common use as purgatives. Their method of employment is to split the fruit into halves, scoop out the seeds, and then fill the cavities with milk. After standing for some time the liquid absorbs the active principles of the plant and is then used as a purgative. Camel's milk also appears to be possessed of purgative properties. The order compositæ furnishes several medicinal herbs which the Arabs make use of. The Santolina fragrantissima, a plant of a sage-green color, of bitter taste, and strongly fragrant smell, furnishes them, in the form of an effusion, with a carminative which they use for colic and all painful affections; while in the bazaars of Cairo the dried heads of this plant are sold for the same purposes as chamomile. Natives also claim that the smell of this plant is sufficient to drive reptiles from the house, and it is used for this purpose in Cairo and other towns. Another plant of the same order is an artemisia, or wormwood, with a strongly aromatic odor and bitter taste. This is also used to drive away vermin; and from the seeds of some varieties of artemisia which grow in these parts santonin seems to be derived. In the wilderness of Judæa there is a variety of marigold which is very common, and which is used by the natives along the Mediterranean sea-board as a sort of tea for flatulence and pain in the abdomen. One of the commonest desert plants is the zygophyllum, so called from the leaves being composed of short, succulent, jointed segments. These bruised in water form a mucilaginous liquid which the Arabs largely employ as an application for sore eyes. A curious tropical plant which is found at the south end of the Dead Sea is the osher (Callotropis gigantea), a large tree-like asclepiad containing enormous quantities of milky acrid juice. Its properties are stated to be powerfully purgative and emetic. The natives give it to women whose milk is scanty. The castor-oil plant also grows here, but its virtues appear to be unknown to the natives. Another common plant is a variety of hyoscyamus, of which the dried leaves are used to smoke and produce a kind of intoxication or delirium, and an infusion of the fresh leaves possesses strong narcotic properties. Only two mineral substances appear to be regarded by the Arabs as medicinal. One is sulphur, the other is a kind of common red coral found on the shore of the Red Sea, which appears, however, only to be used as a charm.

A RARE GENITAL MALFORMATION.

A person, 20 years of age, was recently exhibited to an association of Austrian physicians by Dr. Schossenberger (*Wiener Med. Bl.*, No. 14, 1885).

Catherine W., baptized as a girl, was employed as a female servant though evincing a strange inclination toward men's work. Her body, of medium height and development, showed unusually large hands, her skin was white, delicate, and almost hairless; breasts full and large. Examination of the genitals presented what appeared to be two closely approximated labia majora, which, however, at close inspection were shown to be a divided scrotum concealing a testicle in each apparent labium majus. These labia majora being separated, the labia minora presented themselves fully covering the clitoris. The latter was about the size of a hazelnut, readily erectile to a height of two centimetres, and unpierced. Immediately below there was a three millimetre long deep furrow, after which a sort of vestibule showed itself, narrowing like a funnel into a urethra.

She pretends to have had frequent intercourse with women ever since her sixteenth year, with full accomplishment of the act and ultimate seminal discharges. She had never had intercourse with men.

NEWSPAPERS OF TO-DAY.

People generally, and even those who may be termed steady readers and close observers, have but a faint conception of the magnitude and influence the press of this country has attained. From a careful examination of the advance pages of the 1885 edition of the *American Newspaper Directory*, issued May 1, by Geo. P. Rowell & Co., of New York, it appears that there are 14,147 newspapers and periodicals published in the United States and Canada; of these the United States has 12,973, an average of one paper for every 3867 persons. In 1884 the total number of newspapers was less by 823 than at present, and while the gain this year is not so marked as in some previous years, it is still considerable. Kansas shows the greatest increase, the number being 78, while Illinois follows

with a gain of 77. It is curious to notice that New York, the scene of so much political activity during the last campaign, should have only about one-third as many new papers as the State of Pennsylvania. As an index to the comparative growth and prosperity of different sections of the country, especially the Territories, the number of new papers forms an interesting study, and may well occupy the attention of the curious.

THE SEAT OF THE ACTIVE PRINCIPLE IN VESICATING INSECTS.

H. BEAUREGARD has made an attempt to solve the hitherto incompletely elucidated question as to the exact seat of the cantharidin in the bodies of vesicating insects, using in his investigation the ordinary European cantharis vesicatoria, of which he was favored with a good supply. The result of the researches upon this point made by Berthoud, Ferrer, Fumouze, and Lissonde, using chemical methods, may be summed up in the proposition that "the soft parts are much more active than the hard parts (elytra, legs, and tail)." Courbon, experimenting physiologically upon epicauta adspersa, denied that the hard parts exercised any epispastic action, and Leydi speaking of epicauta vittata, went further and said of this species that "the vesicating principle resides in the blood and in a fatty matter peculiar to certain glands accessory to the generative organs and in the eggs."

The author in his experiments estimated the vesicating property of the substance under examination, by applying to his arm either a moistened powder of the particular parts of the insect, or the mixture of oil and crystals obtained by macerating them twelve hours in acetic ether, expressing, filtering, and evaporating. In this way he ascertained that in the case of cantharis vesicatoria the blood is vesicant in a rather high degree, whilst the hard parts free from blood are absolutely inactive. As to the soft parts, he found that the muscles, respiratory and digestive organs, fat, and Malpighian tubes are quite devoid of epispastic power, which resides solely in the genital apparatus.

In the males the testicles and the deferent canals are inactive, but an energetic vesicant property was found to reside especially in the pair of seminal vesicles situated in much elongated cylindrical tubes. The application to the forearm of a small portion of one of these vesicles determined the formation of a voluminous blister, with a painful tumefaction at the periphery. Sometimes a blister was obtained with the part of the deferent canals nearest to these tubes, but this was attributed to sperm contained in the canals, for in the majority of cases these were found to be completely inactive.

In the female, all the parts of the genital apparatus and the eggs are epispastic. The eggs after being deposited were found to have a very energetic vesicant action, and this induced the author to see if this property disappeared at any period during the evolution of the insect to reappear subsequently. He found the larva as it first issues from the egg is equally active; five and twenty of them reduced to a pulp and applied to the forearm producing a small blister. Lastly, the very young cantharides, measuring eight to ten millimetres long, which had not yet coupled, were found to be equally vesicant. These various results invalidate the conclusions of Neutwich, who asserted that the epispastic power is not developed until after the coupling of the insects, and that young or medium sized insects do not determine the formation of blisters on the skin.—*Pharm. Journ. and Trans.*, April 25, 1885.

THE OWNERSHIP OF A PHYSICIAN'S PRESCRIPTION.

The Supreme Courts of New York and Massachusetts have settled the matter as to who owns a medical prescription. The substance of the decisions is, that the physician, in prescribing, gives the patient a written order for drugs, and their delivery terminates the operation. The druggist may, on his own responsibility, renew the drugs, for he is a merchant, and has a right to sell drugs in any shape. He is not bound to give a copy of the prescription, nor even to keep it, though he usually retains it as a protection in case of error on the part of doctors or patients.

INDIAN HEMP AS A CAUSE OF INSANITY.

Indian hemp (cannabis Indica) occupies a prominent place among the alleged causes of insanity in India. Some interesting particulars in this regard are given in the report on lunatic asylums in Bengal for the year 1883. Out of the 232 cases admitted and readmitted during the year, causes were assigned in 134 cases, 20 being moral causes, and 108 physical causes. Of these latter, 76 were ascribed to Indian hemp. The following table shows the

number of cases in which the cause of insanity was attributed to intemperance and the use of drugs:

Asylum.	No cause assigned.	Cause assigned.		
		Ganja and other forms of hemp.	Spirit-drinking.	Other causes.
Dallunda (Calcutta)..	35	22	5	14
Dacca	30	5	3	19
Patua	17	27	7	2
Cuttack	10	10	..	2
Berhampore	6	12	..	6
Total.....	98	76	15	43

Of the 76 admissions from ganga and bhang in 1883, there were only 34 recoveries. If the causes were rightly ascribed, the proportion was small, and proves that, with increased admissions, there was no increase of cases of mere temporary intoxication among them such as would be produced by the action of Indian hemp *per se;* but that the insanity was an antecedent condition to the indulgence in hemp. The surgeon-general also remarks concerning spirit intoxication as a prevalent cause of insanity, that he believes the estimates on this point are very much below the truth, and that, on the other hand, resort to intoxication is sometimes assigned as the cause of a derangement of which it is only an early result.—*Indian Medical Gazette*, April, 1885.

THE INFLUENCE OF THE BROMIDES IN THE PREVENTION OF IODISM.

A case of tertiary syphilis in which it was absolutely impossible to administer any form of the various iodides, led Dr. H. S. Norris (*Med. News*, May 23, 1885) to combine iodide of potassium with the bromide of potassium in the proportion of one grain of the former to two of the latter. He began with 5 grains of the iodide thus guarded in water three times a day, and after a few days the dose was slowly increased to 6, 7, and at last 10 grains, always preserving the same relations between the two salts; its use being entirely free from coryza, or any symptoms of iodism. Wishing to satisfy himself as to just what part the bromide was playing in the absence of coryza, Dr. Norris directed one morning that 10 grains of the iodide should be taken alone. This one dose was followed by such severe coryza that all treatment had to be suspended for thirty-six hours. He then returned to the mixture as before, beginning again with the 5-grain dose, increasing slowly, and carrying it up to 15 grains, and on 45 grains a day improvement was pronounced and rapid. Sometimes he would take three doses of 15 grains each, sometimes the entire quantity in two doses; but in all instances with entire freedom from coryza. After the disease was thoroughly arrested and improvement begun, the quantity of bromide was slowly diminished, while the iodide was maintained at 15 grains until in two or three weeks he was taking it alone, and continued to do so until he was entirely well.

DETECTION OF OLEOMARGARINE.

The following test for oleomargarine is as reliable as simple. A few drops of sulphuric acid when placed on genuine butter produce first a yellowish-white and after ten minutes a brick-color, while oleomargarine treated in the same manner assumes first an amber and later a crimson color.

CONTRIBUTION TO THE THERAPEUTICS OF DIARRHŒA.

Pribram, speaking before the Association of German Physicians in Prague (*Wien. Med. Wochschr.*, No. 8, 1885), pointed out the peculiar advantages of cotoïn in diarrhœa. Being insoluble in an acid, but readily soluble in an alkaline solution, its efficacy is naturally high in the dyspeptic diarrhœas of children and in acute diarrhœa of the small intestines. Naphthalin has been recommended by Rossbach as a moderately energetic remedy against the diarrhœa of children, even in ulcerative processes of the intestines and in recent typhoid fever. Being almost entirely insoluble in the stomach and intestines, it can be given in large quantities up to thirty or more grains. Its antiseptic properties enhance its value.

The keratin pills of Unna described previously in the Therapeutic Gazette, properly medicated, are also suitable preparations for diarrhœa.

BUCKWHEAT FLOUR IN DIABETES.

Dr. A. M. Duncan, of Hamler, Ohio, writes to the *New York Medical Record*, May 16, 1885, that Dr. Alvord, a retired practitioner of that place, who is a sufferer from glycosuria, finds more relief from a diet of pure buckwheat-flour cakes than from anything else. While he adheres to this food the

urine becomes nearly normal in quantity and quality, there is no gastric distress, and the pain in the eyes—nearly destroyed by chronic iritis—is markedly relieved. On resuming the use of wheat bread and other starchy foods, the symptoms become aggravated, to be again relieved upon a return to buckwheat.

A NEW METHOD OF TREATING SPRAINS.

Every one who has had sprains to treat in practice must have been frequently annoyed by the slowness of recovery of the injured part. Dr. Thomas L. Scherer (*Canada Med. Record*, May, 1885) states that he has had a number of sprained limbs to treat, and, being dissatisfied with the usual plans of treatment, was led to employ clay as an external dressing. He uses the ordinary brick-clay, free from gravel, dried, and finely pulverized in a mortar, and then mixed with water so as to form a thick paste. This is spread on muslin to the depth of one-fourth of an inch, applied around the part, and over this a rubber roller-bandage just tightly enough to keep the dressing from shifting and to retain the moisture. At the end of twenty-four or thirty-six hours the dressing must be renewed. Dr. Scherer reports a number of cases of sprain in which this treatment was used, and in which cure resulted, in what is stated to have been severe sprains, in from eight to ten days, while the pain in eleven cases was relieved after twenty-four hours' application of the dressing.

NITRITE OF AMYL AS AN ANTIDOTE TO OPIUM.

The case is recorded of a person who took two ounces of laudanum and showed every symptom of opium-poisoning,—coma, small pulse, feeble and infrequent respiration (six to the minute), coldness, and cyanosis. Belladonna proved useless, while inhalation of nitrite of amyl immediately improved, and ultimately restored, the patient. This case, reported by the *L'Union Médicale*, No. 139, 1884, though probably without precedent in medical literature, is sufficiently important to lead others to try the same treatment in opium-poisoning.

THE PATHOLOGY OF DYSMENORRHŒA.

Dr. Bell, of Glasgow, in a paper on dysmenorrhœa, has drawn the conclusion that it arises in conjunction with stenosis, but that the stenosis is not the sole cause, because the pain ceases when the flow becomes established. Dysmenorrhœa might accompany a neuralgic condition of the uterine walls, and frequently did so. It had been said to be due to spasm of the uterus, and had been compared to the spasm which produced asthma, and, by way of argument, it had been said that asthma was cured by a copious secretion of the mucous membrane, just as dysmenorrhœa was generally relieved when the menses flowed freely. Dr. Bell held that the very reverse was the case, for it was only when the spasm in asthma ceased somewhat that the mucous membrane was able to secrete mucus to any extent. When the spasm was severe the nerve-centres, which controlled the mucous secretion by reflex action, were temporarily paralyzed, and it was only when the irritating effect of the spasm subsided that they were able to act, when the modified irritation which remained stimulated them to free action. When a copious flow of mucus resulted, just as when a severe inflammation of the Schneiderian membrane occurred, no mucus was secreted; but when this subsided, the more intense irritant ceased to act so powerfully on the ganglionic centres when their activity was restored, and afterwards stimulated by the moderate degree of irritation which the less congested condition of the mucous membrane conveyed through the afferent filaments. The obstructive theory had many advocates, among whom were Dr. Barnes and the late Marion Sims, but Dr. Bell was unable to agree with them that fluid blood should be less able to escape without pain than the catarrhal discharge, which was copiously excreted in the inter-menstrual period.—*Journ. of Amer. Med. Association*, May 2, 1885.

PERSISTENT ANURIA.

Though the compensatory action of the skin and the intestinal evacuation allow of a urinary suppression for a considerable time without necessarily creating serious inconvenience, there is obviously a limit of time beyond which uræmic intoxication is sure to occur. Tennesson (*Gaz. des Hôp.*) reports a case of calculous anuria of fifteen days with ultimate death; Whitlaw (*Real-Encykl. d. ges. Heilkunde*), the unique instance of an anuria of twenty-five days in a boy eight years of age, with subsequent recovery, while an aged patient of Bernard (*Wien. Med. Woch.*, No. 3, 1885) succumbed after the eleventh day.

Another case lasting nineteen days, likewise terminating in death, is reported by LEIBLINGER in the *Wien. Med. Woch.*, No. 9, 1885.

The causes of anuria are various, and refer either to morbid changes (including neoplasms) of the urinary organs, physical obstacles of the urinary tract, or, lastly, to nervous factors, such as diminished cardiac action dependent upon the nervous excitation of alcoholism. The subject of the nervous influence upon the secretion of urine is equally interesting as obscure and deserves to be investigated.

GLYCERIN FOR DRYNESS OF TONGUE AND THIRST IN FEBRILE STATES.

As quoted by the *Canada Medical Record*, May, 1885, SURGEON-MAJOR S. K. COTTER, in a recent number of the *Indian Medical Gazette*, relates the case of a patient suffering from enteric fever who was awakened every ten minutes by the dryness of his tongue, which was parched and covered with sordes. The tongue was painted with glycerin frequently, and the result was that at the first trial the patient slept almost comfortably, waking up about every two hours with the tongue feeling dry, but not really dry to the touch; after renewed application of the glycerin he at once slept again. In six other cases it has been tried and found satisfactory. Surgeon-Major Cotter does not attempt to decide whether it acts by increasing secretion from the mucous membrane, dissolving the sordes, or making an artificial coating. But in whatever way it acts, its benefit is vouched for when the tongue is parched during any disease.

ICHTHYOL.

A new substance named ichthyol has been introduced as a remedy in skin diseases by DR. UNNA, of Hamburg. It is obtained by distillation from a bituminous rock discovered about three years ago near Seefeld, in the Tyrol. Professor V. Fritsch states that the bitumen of this rock is nothing but the residue of decomposed animal matters derived from fish, etc. Hence the name *ichthyol.*

The products of distillation of the Seefeld bituminous rock are treated with sulphuric acid. The resulting substance, ichthyol, is a soft mass of the consistence of vaseline, and in appearance resembling tar. It differs from known tars, vegetable and mineral, not only in odor, but especially in its physical properties. It forms an emulsion with water, is partly soluble in ether and in alcohol, while a mixture of the two latter dissolves it completely. It is miscible in all proportions with vaseline and oils.

Ichthyol is rich in sulphur, containing about ten per cent. in a condition of such intimate union that it cannot be separated without complete decomposition of the substance.

Ichthyol also contains a considerable quantity of oxygen, besides carbon, hydrogen, and traces of phosphorus.

Dr. Unna has used ichthyol with good results in psoriasis and other skin diseases in which sulphur-treatment is indicated. He has found that this substance constantly applied to the healthy skin for weeks, and even enclosed by an impermeable covering, does not produce dermatitis, which would inevitably follow the application, under like conditions, of an ointment containing ten per cent. of sulphur.—*Pharmaceutical Record*, May 15, 1885.

PEREIRINUM MURIATICUM IN MALARIA.

DR. FERREIRA urgently recommends the use of the hydrochlorate of pereirine in chills and fever, and praises the prompt and reliable action of the drug even in cases that had resisted cinchonization. The daily dose is 30 grains, to be repeated as the requirements of the case call for.

ANTIPYRINE IN PHTHISIS AND OTHER FEBRILE DISORDERS.

As is well known, in many consumptive patients the most trivial causes will often start a degree of fever which it is frequently difficult to suppress; and should the pyrexia continue for two or three days, we are almost certain to discover signs in the lungs of some fresh mischief. The fever, then, is the first and earliest symptom of lung-change, and must be immediately attacked, and DR. J. HOLLAND reports in the *Practitioner* for May, 1885, twenty cases in which he has used antipyrine for this purpose, and he states that it has been more successful in his hands than all the other drugs put together.

THE ADMINISTRATION OF CASTOR OIL.

The French method of administering castor oil to children is to pour the oil into a pan, put over a moderate fire, break an egg into it and stir. When it is done, flavor with a little salt or sugar or currant jelly.—*Weekly Drug News.*